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Common Plants of the Inland Pacific Northwest

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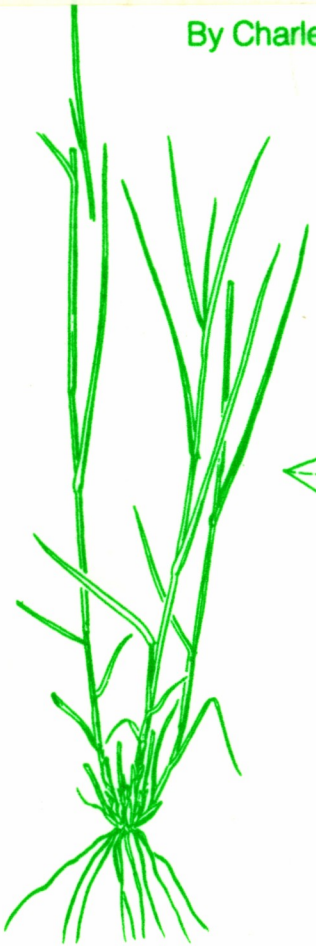
By Charles Grier Johnson, Jr.



United States Department of Agriculture
Forest Service
Pacific Northwest Region

LOAN COPY

Common Plants of the Inland Pacific Northwest

C. Johnson

By
Charles Grier Johnson, Jr.
Plant Ecologist
(Malheur, Umatilla and
Wallowa-Whitman National Forests)

MONTHY ALERT
Edition MAY 1995
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Common Plants of the Inland Pacific Northwest

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ACKNOWLEDGEMENTS

References - A listing of consulted references is located in the back of this publication. Many valued tidbits of information were gleaned from these works. An appreciation was gained for the information provided by botanists, Native Americans, rangeland managers, dendrologists, wildlife biologists and others in the review of the literature.

Photographs - Quality in close-up photography is often hard to achieve. A lot of gratitude is extended to the following plant photographers who provided pictures needed to complete the photographic coverage of the species provided in this field guide. Photographs have been credited to the following:

Paula Brooks, Bill Hopkins, Charlie Johnson, Karl Urban, Len Volland, Clint Williams, and Al Winward.

Line Drawings - The pen and ink drawings of plant parts have been used by permission of the University of Washington Press (Seattle, Washington) and were copied from "Vascular Plants of the Pacific Northwest" (Volumes 1-5) by C. L. Hitchcock, A. Cronquist, M. Ownbey, and J. W. Thompson.

Valued assistance was provided by Alice DeVries (line drawing copying), Vickie Medlin and Rod Clausnitzer (editorial review), and Gail Saunders-Boyle (layout/design). Special recognition is given to Kathy Hottle for her dedication, patience, skill and care in word processing, editing and formatting this document. A hearty thanks to you all.

This field guide is dedicated to my family and "plant people" everywhere who stop to appreciate the special beauty and take time to reflect on the contribution that plants make to our Pacific Northwest landscape.

INTRODUCTION

The purpose of this field guide is to provide a handy reference for the person engaged in identifying vascular plants in the intermountain northwest. The guide contains some of the most important and common plants encountered in the forests, shrublands and grasslands between the Cascades and northern Rockies of eastern Washington, eastern Oregon and west central Idaho.

The objectives in developing a field guide with this format were several. First, it was important to provide a guide which included the important diagnostic species needed to properly key to the plant associations and habitat types which have been published for the inland Pacific Northwest. Secondly, it was important to provide helpful information to the infrequent identifier of plants and make the guide "user friendly." The addition of color plates and line drawings was important as a visual aid to provide assurance to the user that the plant shown and the plant identified were the same.

It is hoped that this field guide will provide a valuable service as a link between the academic floras and the lay publications available in the Pacific Northwest.

Charles G. Johnson, Jr.
Baker City, Oregon

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FORMAT OF THE SPECIES DESCRIPTIONS

LEFT-HAND PAGE

Common Name: The most widely accepted common name used in the local area.

Scientific Name: The currently accepted generic, specific and varietal names are given following "Vascular Plants of the Pacific Northwest" by Hitchcock, et al. In some cases, the previously accepted scientific name is provided in parenthesis.

Family Name: The family to which the species belongs is given beneath the scientific name.

Code: The alpha-numeric code used widely for computerization purposes is provided following "Northwest Plant Names and Symbols.." by Garrison, et al.

Range: Describes the geographic limits of the species, with particular emphasis to the Pacific Northwest.

Habitat: Provides the moisture, temperature, and elevational requirements for the species and the kind of community in which they grow.

Look Alikes: Indicates similar species that are often confused with the plant being described and how these similar species differ from it.

Indicator Value: The value in knowing the described plant. Important plant associations are often listed of which the species is indicative. Plant associations are given in coded format and are defined on page 374.

Miscellany: Provides interesting and useful information about the plant. Historic Native American use, current use, edibility or toxicity, palatability to ungulates, and response to disturbance are provided here.

Photograph: The best available color photograph is provided to help in diagnosis.

RIGHT-HAND PAGE

Common name, scientific name, and code are given as headings.

Habit: The general appearance of the plant including size, shape, and rooting characteristics.

Big Tree: The latest data for the National Champion tree and the largest known trees in the Inland Pacific Northwest. The points accumulated are from adding the tree measurements and help determine the winner for championship status.

Stems and Bark: On shrub species, the color, hairiness, branching pattern, and texture are provided.

Buds: The shape and color on trees and shrubs.

Leaves: The shape, size, venation, margins, hairiness, color, arrangement on stem, etc.

Sori: The shape of the cluster of spore-bearing structures on fern fronds.

Inflorescence: Used in grass-sedge section descriptions to describe the flowers and stalks of grasses and sedges.

Flowers: The size, shape, color, kind of inflorescences and months of flowering.

Fruit: Type, color, number, size, and important diagnostic features.

Line Drawing: Important features are provided from illustrations in Hitchcock, et al (5 vol. set - 1955, 1959, 1961, 1964, 1969).

Grand Fir

Abies grandis **ABGR**
Family - Pinaceae

Range: Vancouver Island, British Columbia south to Bay Area of California on west side of Cascades; southeastern British Columbia in Rocky Mtns. to northcentral Idaho, western Montana; southeastern Washington and northeastern Oregon in the Blue and Wallowa Mtns.

Habitat: Principal montane coniferous forest. On moist mountain slopes; on northerly and easterly slopes at lower limits; and on all aspects at upper limits. Environmentally oriented moister and cooler than climax ponderosa pine and Douglas-fir sites; warmer than climax subalpine fir sites.

Look Alikes: Easily confused with white fir (***Abies concolor***). Differentiate by stomatal bands (white fir has full stomatal band on top of leaf) and leaf length (white fir leaves longer than 1 1/2 inches). Hybridization between these two true firs in eastern Oregon and west central Idaho make identification difficult. Subalpine fir (***A. lasiocarpa***) - stomatal band along top of leaf; leaves upturned and spirally arranged. Resin ducts midway between leaf margin and midvein.

Indicator Value: Type indicator for grand fir plant associations. The most mesic species of the intermountain coniferous trees. Representative of warm to cool (but not cold), moist (but not wet) environments. Sites are very productive in species richness and biomass.

Miscellany: Wood used for lumber and pulp. Fir stands are invaluable to wildlife. Provides excellent thermal and hiding cover, snags for cavity nesters, hollow logs for dens, and browse in winter to help sustain deer and elk. Commercially grown for Christmas trees. Moderately susceptible to mortality from fire (dependent on stand structure and site). Fire in drier grand fir plant associations may underburn with less tree mortality; in moister grand fir plant associations fire results in stand replacement burns. Indian paint fungus is the primary wood rotting disease for grand fir; spruce budworm and tussock moth reduces stocking on dry sites and where tree stocking levels are too high. Nez Perce used resin for tea against whooping cough and to make an ointment for colds. Boiled needles were used for eyewash; dried and pulverized as a baby powder.

C. Johnson

Grand Fir

Abies grandis **ABGR**

Habit: Coniferous tree (up to 250 ft. tall); narrow, open crown usually rounded.

Big Tree: National Champion - Olympic Nat'l Park, Washington (Ht. - 251', Circum. - 229", Spread - 43', Points - 491).

Oregon Champion - No candidate.

Idaho Champion - Clearwater NF (Ht. - 218', Circum. - 172", Spread - 31', Points - 398).

Wallowa-Whitman Champion - Pine RD (Ht. - 120', Circum. - 218", Spread - Inc., Points - Inc.).

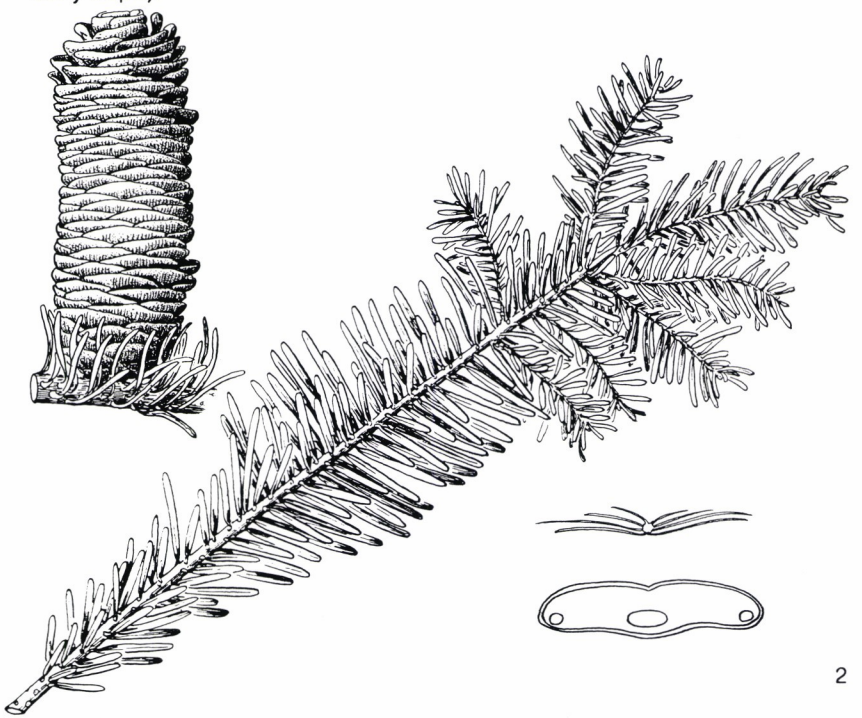
Umatilla Champion - Pomeroy RD (Ht. - 200', Circum. - 236", Spread - 48', Points - 448).

Bark: Smooth, grey to light brown (with resin blisters at early age), ashy brown with 2-3 inch thick furrowed bark in older trees; inner bark dark purplish-red.

Buds: Rounded, 3 at apex of stem, yellow brown.

Leaves: Needles (1 to 1 1/2 inches long); notched at apex; dark green; stomatal bands on lower leaf surface with no band on top (or a short stomatal blotch near the tip on leaf top); two-ranked in flat sprays; resin ducts located near the leaf margin.

Fruit: Cones. Staminate cones yellowish; ovulate cones yellow-green to green (2-4" long); cylindrical; upright on branch; bracts shorter than scales; cones disintegrate on the tree (flowers - May-June; sheds seeds - early Sept.).



Subalpine Fir

Abies lasiocarpa **ABLA2**
Family - Pinaceae

Range: Alaska and the Yukon to Alberta, British Columbia; south in Cascades to the Siskiyous in Oregon; south to Blue and Wallowa Mtn. of eastern Oregon; mountains of north and central Idaho, western Montana, Wyoming, Colorado, New Mexico and Arizona.

Habitat: Subalpine slopes, ridges (usually between 5000 ft. and 8000 ft.). Found at lower elevations along streamcourses due to cold air flow. With elevational increases the species occupies northerly and easterly aspects. Occupies all aspects at timberline. Environmentally oriented on cooler sites than climax grand fir, Douglas-fir and ponderosa pine.

Look Alikes: Engelmann spruce (***Picea engelmannii***) - sharp pointed leaves; cones fall intact. Grand fir (***Abies grandis***) needles two-ranked; lacks full stomatal band on leaf top. Douglas-fir (***Pseudotsuga menziesii***) - sharp, pointed reddish buds; cones fall intact. White fir (***Abies concolor***) - needles over 1 1/2 inches long to 2 1/2 inches long; resin ducts near leaf margin.

Indicator Value: Type indicator for subalpine fir plant associations. Highly present in cold, moist environments where mountain hemlock, Engelmann spruce and lodgepole pine occur.

Miscellany: The most widely distributed fir in North America. Wood used for lumber; makes excellent pulp. Subalpine fir stands important to wildlife as summer range for mule deer, elk, bear. Forests used for squirrels, mice, chipmunks, and lynx. Birds using subalpine fir trees are woodpeckers, nuthatches, juncos, chickadees, crossbills, siskins, grouse and owls. Blue grouse use subalpine fir stands year round and heavily feed on needles and buds. Native Americans made a hair tonic using needles made into powder with grease from deer; placed finely ground needle powder on open cuts; scent from boughs as air fresheners. Nez Perce warded off bad spirits placing boughs in their lodges; burned fir to rid bad spirits, and to fumigate a lodge after death of the occupant. Western spruce budworm, tussock moth, wood rots and fire are damaging agents. Very susceptible to fire. Low intensity fire kills the trees due to thin, resin-filled bark, shallow roots and dense lower branches.

C. Johnson

Subalpine Fir

Abies lasiocarpa **ABLA2**

Habit: Coniferous tree (up to 100 ft. tall); with a spirelike crown; upper branches short, stiff; lower branches usually drooping. Near timberline tree is greatly dwarfed into shrubby form by environmental elements (cold temperatures, severe winds, snow and ice shearing).

Big Tree: National Champion - Olympic Nat'l Park, Wash. (Ht. - 129', Circum. - 253", Spread - 22', Points - 388).

Oregon Champion - No candidate.

Idaho Champion - Clearwater NF (Ht. - 137', Circum. - 157", Spread - 20', Points - 298).

Wallowa-Whitman NF Champion - Pine RD (Ht. - 121', Circum. - 120", Spread - 33', Points - 249).

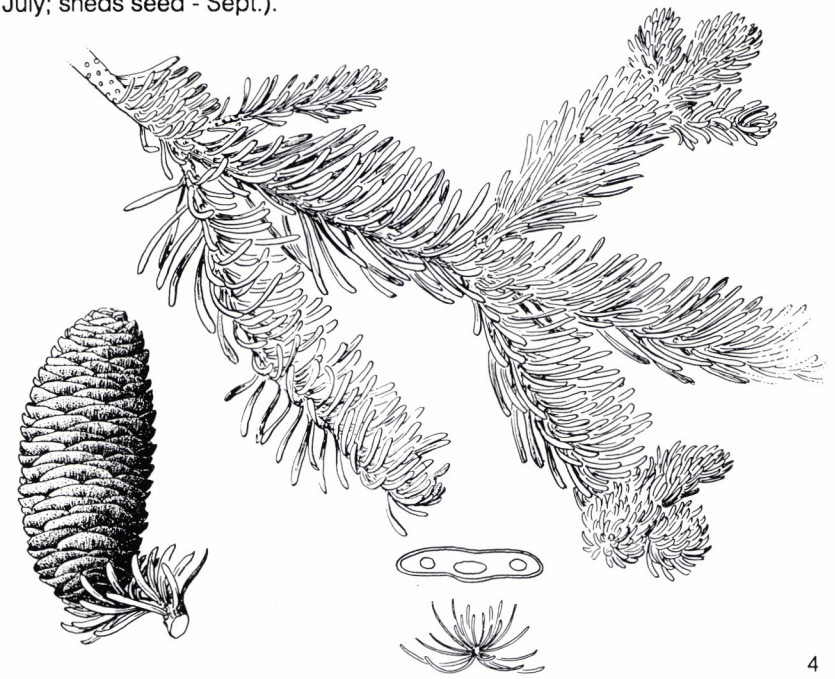
Umatilla NF Champion - Pomeroy RD (Ht. - 153', Circum. - 108", Spread - 25', Points - 268).

Bark: Thin, ash-gray, smooth with resin blisters; on older trees bark is fissured at the base.

Buds: Rounded, 3 at apex of stem, light brown.

Leaves: Needles (1-1 1/2 inches long); bluish-green; rounded tips, stomatal bands on both surfaces; leaves turning upward from spiral arrangement on the twig. Resin ducts located midway between leaf margin and midvein.

Fruit: Cones. Staminate cones bluish (up to 10mm long); Ovulate cones deep purple (2-4 inches long); cylindrical; upright on the branch; bracts shorter than scales. Cones disintegrate on tree (flowers - June to early July; sheds seed - Sept.).



Western Juniper

Juniperus occidentalis **JUOC**
Family - Cupressaceae

Range: Southeastern Washington, eastern Oregon southward in the Sierra Nevada Mtns. of California. Also in extreme southwestern Idaho and northwestern Nevada.

Habitat: Dry sites at the lower limits of tree growth. Prefers moist, seepy canyon sites but has spread due to fire exclusion and overgrazing into dry, sandy and gravelly sites where sagebrush shrublands and grasslands are climax. Occupies the environmental zone between nonforest sustaining lands and the principal coniferous tree growing sites of the mountains.

Look Alikes: Other junipers with scale-like leaves. Rocky Mountain juniper (***Juniperus scopulorum***) has needles 2-ranked, not glandular with resin droplets. Common juniper (***J. communis***) has needle or awl-shaped leaves; spreading - usually under 5 ft. tall.

Indicator Value: The most xeric tree-growing environment in the inland Pacific Northwest. Type indicator for western juniper plant associations. Also found due to fire exclusion and as an accidental in Douglas-fir and ponderosa pine/snowberry communities; ponderosa pine/mountain-mahogany, ponderosa pine/bitterbrush and ponderosa pine/sagebrush communities.

Miscellany: Valued for fence posts and planters due to durability and resistance to rot; firewood. Used for novelty products, clocks, signs, for its coloration; boughs used for Christmas decoration due to contrast in color with evergreen foliage. Berries are important for mammals (coyote, chipmunk, ground squirrel, mice) and birds (grosbeaks, jays, robins). Mule deer and antelope use junipers for food and cover. Bluebirds and chickadees cavity nest in them. Used as ornamental for landscaping. Oils used for flavoring or scenting agents in beverages, seasonings, soaps, cosmetics. Berries are edible (use dried). Readily killed by fire (especially thin-barked young trees). Does not sprout.

C. Johnson

Western Juniper

Juniperus occidentalis **JUOC**

Habit: Rounded, small coniferous tree (up to 30 ft. tall) or bushy shrubs (up to 20 ft. tall). Branches usually extend to the ground.

Big Tree: National Champion - Stanislaus NF, Calif. (Ht. - 86', Circum. - 480", Spread - 58', Points - 581).

Oregon Champion - Redmond, OR. (Ht. - 90', Circum. - 116", Spread - 38', Points - 216).

Idaho Champion - Owyhee County (Ht. - 57', Circum. - 205", Spread - 46', Points - 273).

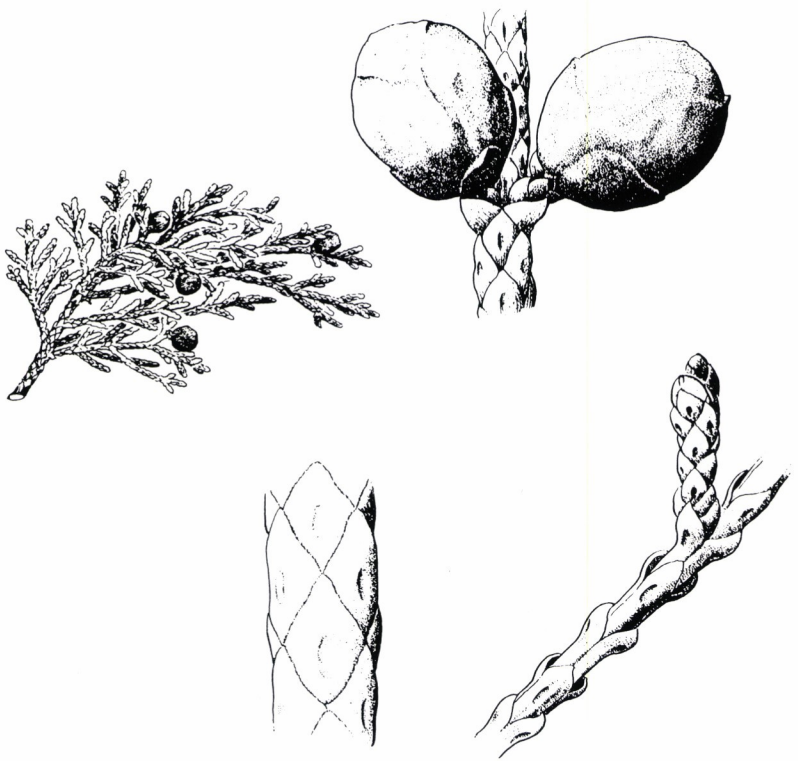
Wallowa-Whitman NF Champion - Wallowa Valley RD (Ht. - Inc., Circum. - 151", Spread - Inc., Points - Inc.).

Umatilla NF Champion - Heppner RD (Ht. - 63', Circum. - 191", Spread - 40', Points - 264).

Bark: Stringy and furrowed, thin; grayish-brown with reddish-brown inner bark.

Leaves: Scale-like, opposite or in 3's acute (1/8" long); gray-green with a prominent gland on upper leaf surface (usually with a resin droplet).

Fruit: Cones. Ovulate cones bluish-black, round (1/4"); covered with glaucous bloom (flowers May-June).



Western Larch

Larix occidentalis **LAOC**
Family - Pinaceae

Range: Southern British Columbia south on east side of Cascades to central Oregon; across northern Washington to northeast Montana, northern Idaho and in southeast Washington and northwest Oregon.

Habitat: A mid montane species growing on moist, deep soils as well as dryer gravels. Found in north and east exposures at lower limits of its environmental range (i.e., moist, cool Douglas-fir plant associations); on all exposures in the moist mid and upper elevational range. Especially prominent on ash influenced soils.

Look Alikes: Very distinctive. Might be mistaken for ponderosa pine (*Pinus ponderosa*) when looking at the bark only. But on closer inspection the larch needles and cones are very different from that of pine. Pine - needles in fascicles of 2, 3, or 5; cones without bracts. Larch - 15 to 30 tuffed on a spur; cones with bracts.

Indicator Value: A fire seral species in Douglas-fir, grand fir and subalpine fir plant associations. Degree of dominance by larch in fir communities is indicative of past fire history and frequency.

Miscellany: Valuable, due to strength of wood, for construction lumber, utility poles, plywood and veneer, shakes and firewood. Larch forests provide habitat for elk, deer and bear. Blue grouse and spruce grouse use the needles. Crossbills eat the seeds. Native Americans made a sweet syrup and chewed gum from the resin. Nez Perce drank tea from the bark for colds, coughs and sore throats. Bowls were fashioned by Nez Perce. The most fire resistant tree in the inland Pacific Northwest (bark may be 6 inches thick at ground surface). Trees quickly establish after fire, grow rapidly and dominate as fire pioneers.

C. Johnson

Western Larch

Larix occidentalis **LAOC**

Habit: A large coniferous tree (140-180 ft. tall); a long, clear bole with a short crown of horizontal, radiating branches.

Big Tree: National Champion - Libby, Montana (Ht. - 175', Circum. - 233", Spread - 37', Points - 417).

Oregon Champion - Ochoco NF (Ht. - 62', Circum. - 257", Spread - 48', Points 331).

Idaho Champion - Latah County (Ht. - 142', Circum. - 239", Spread - 22', Points - 387).

Wallowa-Whitman NF Champion - La Grande RD (Ht. - 162', Circum. - 234", Spread - 36', Points - 405).

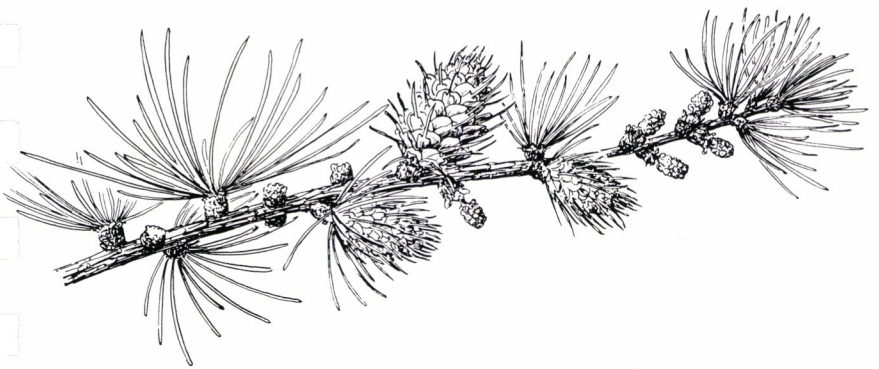
Umatilla NF Champion - Heppner RD (Ht. - 177', Circum. - 212", Spread - 25', Points - 396).

Bark: Thin, scaly grayish-brown on young trees; thick (3-6 inches) flattened plates between deep furrows on older trees. Yellowish brown older bark resembles ponderosa pine bark.

Buds: Rounded (1/8 inch); chestnut brown.

Leaves: Our only conifer with deciduous needles (15-30 bunched in a spur); pale green; 1-2 inches long. Turn brilliant yellow in autumn before falling.

Fruit: Cones. Staminate cones yellow (1/2 inch long); ovulate cones oblong (1 inch long); scales reddish-brown; reflexed scales; bracts with prominent central spine are longer than the scales (flowers May-June; seed shed Sept. - Oct.)



Engelmann Spruce

Picea engelmannii **PIEN**
Family - Pinaceae

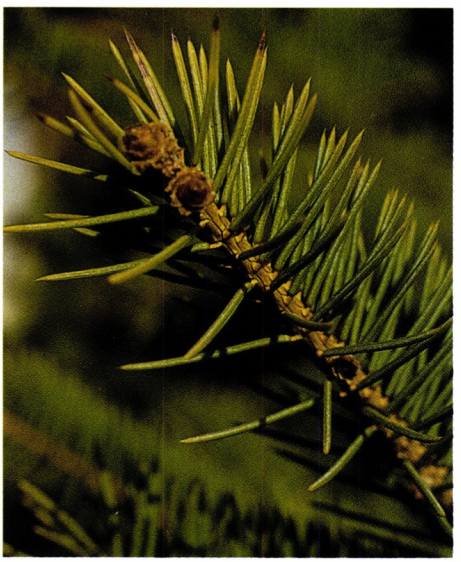
Range: Yukon to British Columbia, Cascades of Washington and Oregon to northern California; east to Alberta and south in Rocky Mountains to New Mexico and Arizona. Rarely west of Cascades in Oregon and Washington.

Habitat: Cold, moist sites (especially wet frost pockets); in forests often dominated by true firs. Best development on well drained soils. Prominent at margins of meadows, streams, lakes. Extends to lower elevations along streams with cold air flow. At mid elevations pure stands occur on alluvial terraces, wet benches, bottom land, seepy slopes or north aspects. At timberline spruce is found on all aspects.

Look Alikes: Easily differentiated from true firs (***Abies grandis, A. lasiocarpa***) and Douglas-fir (***Pseudotsuga menziesii***) by sharp, stiff needles (pricking to the touch). Cones are distinctive from other inland Pacific Northwest conifers in having papery thin scales and light coloration.

Indicator Value: Consistent associate with subalpine fir plant associations; found prominently in cooler, moister grand fir plant associations (ABGR/CLUN, ABGR/TABR/CLUN, ABGR/LIBO2, ABGR/TRCA3, ABGR/GYDR). Long lived seral species.

Miscellany: Wood used for lumber, pulp, plywood. Once widely used in aircraft manufacture due to lightweight, straight grain and easy-to-work properties. Provides excellent hiding and thermal cover for bear, elk, deer. Trees used by chickadees, nuthatches, owls and woodpeckers. Spruce grouse and blue grouse feed extensively on buds and needles. Squirrels clip buds and juvenile shoots. Seeds eaten by squirrels, chipmunks, mice, voles, chickadees, nuthatches, crossbills, and siskins. Used as ornamental landscaping tree. Native Americans used bark for canoes, baskets; roots used for rope; needles used for incense and teas. Root rots, spruce bark beetle and fire are principal agents of mortality. Very sensitive to fire. Killed by low intensity burns due to shallow roots and thin resin-filled bark.



K. Urban

Engelmann Spruce

Picea engelmannii **PIEN**

Habit: Coniferous tree (up to 180 ft. tall); crown narrow and pyramidal; branches whorled and extending to the ground on open-growing trees.

Big Tree: National Champion - Payette Lake, Idaho (Ht. - 179', Circum. - 290", Spread - 43', Points - 480).

Oregon Champion - Willamette NF (Ht. - 140', Circum. - 247", Spread - 34', Points - 396).

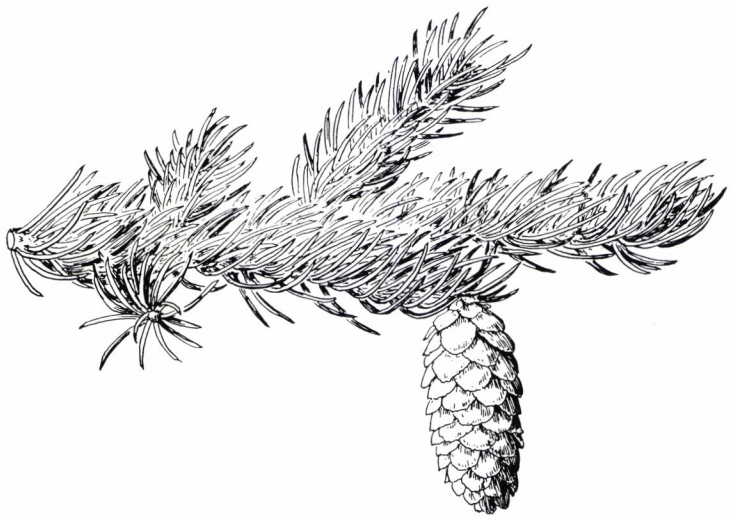
Wallowa-Whitman NF Champion - Pine RD (Ht. - 150', Circum. - 190", Spread - 34', Points - 349).

Umatilla NF Champion - Pomeroy RD (Ht. - 196', Circum. - 152", Spread - 25', Points - 354).

Bark: Thin, loose, scaly; reddish to purplish brown.

Leaves: Needles; rigid, 1-2 inches long, sharply pointed, bluish-green; whorled on the twig; 4-angled; 2 stomatal bands on top and bottom; small knobs remain on the twig when needle is shed.

Fruit: Cones. Staminate cones are yellow (10-15mm long); ovulate cones are oblong (1-2 inches long), light chestnut brown with thin, papery scales; scale margin serrated; blunt bract only 1/3 length of scale; hang pendulous on branches (flowers June-July; seed shed Sept. - Oct.).



Whitebark Pine

Pinus albicaulis **PIAL**
Family - Pinaceae

Range: Southern British Columbia south in Cascades to Sierra Nevada of California; eastward to southwest Alberta, western Montana, eastern Oregon, eastern Washington, northwest Wyoming, Idaho to northern Nevada.

Habitat: Above 6,000 ft. in the inland Pacific Northwest on dry, rocky exposures high in the mountains. It forms stunted shrub-like thickets with subalpine fir at timberline. Pioneers after burns on exposed mineral soils via dispersal by Clark's nutcrackers.

Look Alikes: Other 5-needled pines. Limber pine (***Pinus flexilis***) is high elevation 5-needled pine also. Limber pine cones drop to ground intact and are larger (greater than 3 inches). White pine (*P. monticola*) has stalked, longer cones (over 5 inches) which drop intact to ground; fine, flexible blue-green needles. Only other high elevation pine is lodgepole (*P. contorta*) which has 2 needles per fascicle.

Indicator Value: The highest elevation tree species occupying the coldest environmental zone. Type indicator for whitebark pine plant associations. May be found as seral stage species in some subalpine fir and mountain hemlock plant associations.

Miscellany: Of little commercial value for timber products. Distribution and abundance of the species dependent on Clark's nutcracker for seed dispersal. Fire resistant due to its severe site and scattered nature (fire discriminates against subalpine firs give competitive advantage to the pine). Fire control lengthens intervals between sanitizing burns resulting in fire-prone stands due to increases in fir composition. Very susceptible to white pine blister rust and secondarily to mountain pine beetle after weakening by the rust. Besides Clark's nutcracker, woodpeckers, chickadees, nuthatches, finches, crossbills, grosbeaks and blue grouse use the seeds. Squirrels, chipmunks and bears use the caches. Blue grouse use needles and buds. Greatest value of the tree is for watershed protection.

C. Johnson

Whitebark Pine

Pinus albicaulis **PIAL**

Habit: Stunted to contorted subalpine conifer. Only 15-50 ft. tall. At timberline the trees may become prostrate from severe snow loading, wind and ice shearing.

Big Tree: National Champion - Sawtooth NRA, Idaho (Ht. - 69', Circum. - 331", Spread - 47', Points - 412).

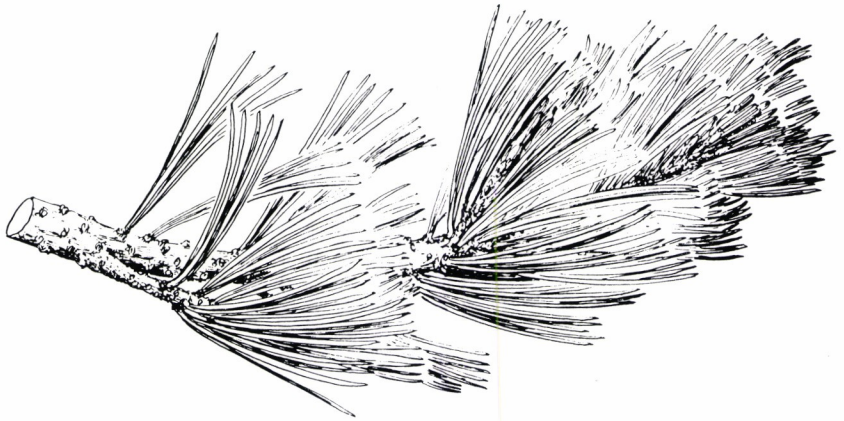
Oregon Champion - Deschutes NF (Ht. - 90', Circum. - 54", Spread - 35', Points - 153).

Wallowa-Whitman NF Champion - Eagle Cap Wilderness Area (Ht. - 80', Circum. - 88", Spread - 34', Points - 177).

Bark: Thin, with whitish scales over a red-brown inner bark.

Leaves: Needles in fascicles of 5; stiff (1-3 inches long); green to yellow-green; clustered at the ends of branches.

Fruit: Sessile cones. Staminate cones red; ovulate cones deep red to purple; ovoid (2-4 inches long); thick scales with upturned point; cones tend to remain closed on tree and disintegrate rather than fall to ground intact (flowers June - July).



Lodgepole Pine

***Pinus contorta* (var. *latifolia*)** **PICOL**
Family - Pinaceae

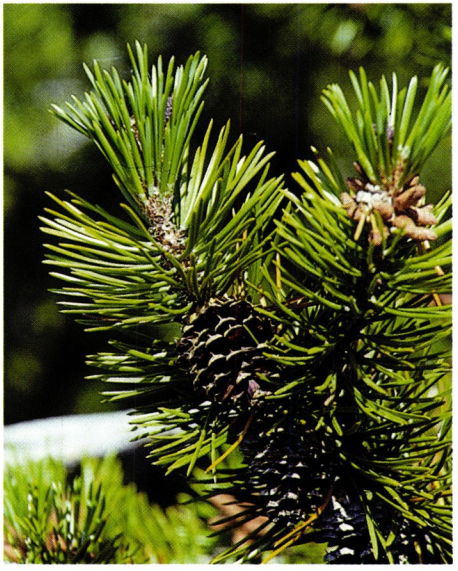
Range: Alaska and the Yukon southward to Alberta, Saskatchewan, through the Rocky Mountains to Colorado. Also in Blue and Wallowa Mtns. of southeast Washington and northeast Oregon. Throughout much of Idaho, northern Utah and western Nevada.

Habitat: Mountain forests at mid to high elevations. An intolerant seral species. Forms extensive pure stands (following stand replacing burns). Grows across a wide environmental range from low elevation, warm-dry forests - i.e., PICO(ABGR)/CARU to high elevation, cold-moist forests - i.e., PICO(ABLA2)/VASC.

Look Alikes: Distinctive with its short needles in 2's and persistent cones. Other pines in the inland northwest have either 3 needles per fascicle - ponderosa pine (***Pinus ponderosa***) or 5 needles per fascicle - whitebark pine (***P. albicaulis***); western white pine (***P. monticola***); limber pine (***P. flexilis***).

Indicator Value: Type indicator for lodgepole pine/pinegrass plant association. Usually an early seral tree species in grand fir and subalpine fir plant associations. Pioneers burned-over sites aggressively forming even-aged stands (10-20 years after fire) but is succeeded by the true fir climax species after 100 years.

Miscellany: The conifer with greatest range of altitudes and latitudes in North America. Wood is valuable for small dimension lumber, plywood, posts and poles, and paper. Provide key summer range for deer and elk. Seeds used by squirrels, chipmunks; needles used by blue and spruce grouse. Native Americans used lodgepole pine poles for tipis; pitch, resin for chewing gum; inner cambium layer to counter tuberculosis. Due to thin bark, regular ground fires kill many trees - but tend to thin the stands. Moderate to high intensity fires generally replace stands by crown burning. Key agents of mortality are mountain pine beetle, dwarf mistletoe, western gall rust, and fire.



C. Johnson

Lodgepole Pine

***Pinus contorta* (var. *latifolia*)** **PICOL**

Habit: Small coniferous tree (up to 80 ft. tall) with a clear slender bole in dense stands; short crown at top.

Big Tree: National Champion - Winema NF, Oregon (Ht. - 125', Circum. - 148", Spread - 53', Points - 286).

Idaho Champion - Valley County (Ht. - 135', Circum. - 137", Spread - 41', Points - 282).

Wallowa-Whitman NF Champion - Unity RD (Ht. - 119', Circum. - 109", Spread - 31', Points - 236). Pine RD (Ht. - 112', Circum. - 117", Spread - 26', Points - 236).

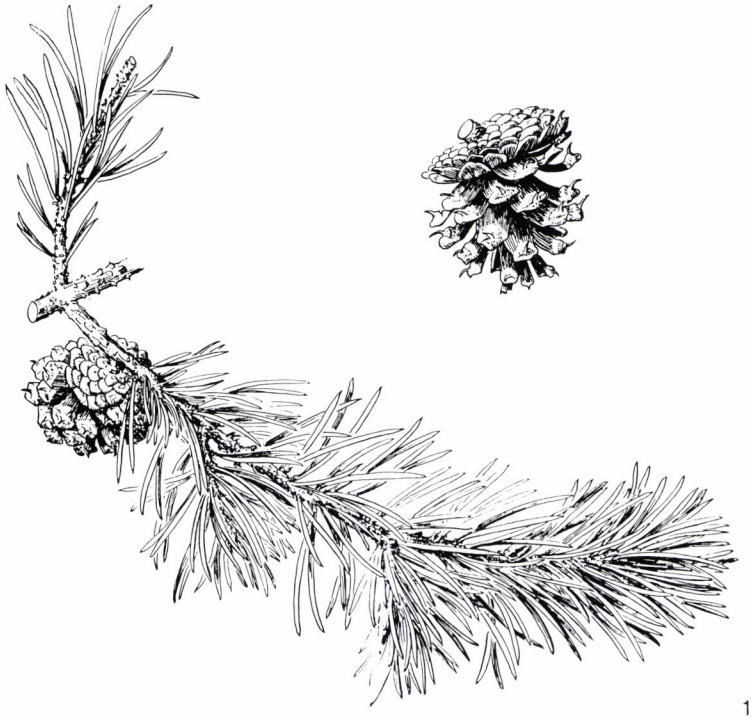
Umatilla NF Champion - Pomeroy RD (Ht. - 90', Circum. - 93", Spread - 28', Points - 190).

Bark: Thin, scaly, gray to dark gray (less than 1 inch thick).

Buds: Ovoid (1/4 inch); chestnut-brown, resinous.

Leaves: Needles in fascicles of 2 (1-3 inches long); stiff - often twisted; green to yellow green.

Fruit: Cones. Staminate cones reddish green, clustered (8-10mm long). Ovulate cones subsessile (1-2 inches long), ovoid, some opening after second year - others remaining closed and persisting many years on tree; purplish-brown; basal scales knoblike; armed with long prickle (flowers April - June; sheds seeds Sept. - Oct.)



Ponderosa Pine

***Pinus ponderosa* (var. *ponderosa*)** **PIPOP**
Family - Pinaceae

Range: Southern British Columbia through Washington, Oregon and California. Extends to Rocky Mountains in Montana and south to Snake River plateau in Idaho (var. *scopulorum* occurs in Great Plains and SW United States).

Habitat: Occurs on warm, dry sites at lower montane elevations and at higher intermountain plateau and valley locations. Occurs on a broad spectrum of soils with best development on deep sandy gravels and loam. Occurs as a seral species in more mesic Douglas-fir and grand fir plant associations. Forms climax communities on warmer, drier sites than the Douglas-fir and true fir climax sites; and on moister sites than where nonforest and juniper plant associations occur.

Look Alikes: Other pines in the western United States. This is our only 3-needled pine. Ponderosa pine needles are longer than lodgepole pine needles (which are 2-ranked). The rest of the native pines (whitebark, limber, white) are 5-needled.

Indicator Value: Type indicator for ponderosa pine plant associations. Occupies Douglas-fir and drier grand fir plant associations in early and mid seral stages when sites are warmer. Absent from subalpine fir sites except as incidental occupant of microsites. Incapable of sustaining growth on climax juniper, shrubland and grassland sites.

Miscellany: Highly valued for lumber (cabinets, doors, window sash). Elk, deer, porcupines, rabbits browse on leaves; mice, chipmunks, ground squirrels use roots and stems; juncos, finches, siskins, grosbeaks, sparrows, chickadees eat pine seeds. Thickets help hide deer and elk. Cavity nesters use standing pine snags. Eagles, turkeys, hawks use trees for roosts and nests. Fire needed to promote pine dominance and to discourage fir on drier Douglas-fir and grand fir climax sites. Adapted to fire (thick bark, open stands, smooth boles free of lower limbs, deep root system, and readily seeds on mineral soils). Of the Inland Pacific Northwest tree species, ponderosa pine provides the greatest contribution to aesthetics (scenery and recreation). Native Americans ate cambium for its sweet, delicious flavor and nourishment; Capt. Lewis used resin to make a salve for abscess. Also used as ointment for rheumatism and backaches and to control dandruff.

K. Urban

Ponderosa Pine

***Pinus ponderosa* (var. *ponderosa*)** **PIPOP**

Habit: Large coniferous tree (up to 180 ft. tall). A clear, symmetrical bole with an open pyramidal to flat-topped crown.

Big Tree: National Co. Champion - Plumas, Calif. (Ht. - 223', Circum. - 287", Spread - 68', Points - 527).

National Co. Champion - Deschutes NF (Ht. 178', Circum. - 342", Spread - 45', Points - 531).

Idaho Champion - Valley County (Ht. - 138', Circum. - 277", Spread - Inc., Points - Inc.).

Wallowa-Whitman Champion - Pine RD (Ht. - 180', Circum. - 210", Spread - 41', Points - 400).

Umatilla Champion - Walla Walla RD (Ht. - 166', Circum. - 220", Spread - 37', Points - 395).

Bark: Dark brown to black on young trees, becoming yellow-brown to cinnamon-red on mature trees. Large flat plates between deep furrows on older trees. Scales of plates look like "jigsaw puzzle" pieces.

Leaves: Needles in fascicles of 3 (5-8 inches long); green to yellow-green; flexible; basal sheath 1/4-3/4 inches long.

Fruit: Cones. Staminate cones yellow to purplish and strongly clustered; ovulate cones deep reddish-purple; maturing reddish-brown to brown (3-6 inch) ovate, sessile cones with chocolate brown scales containing a thickened prickly tip (flowers May-June; sheds seed - Sept.).

Douglas-fir

***Pseudotsuga menziesii* (var. *glauca*)** **PSMEG**
Family - Pinaceae

Range: The inland variety ranges from southeastern British Columbia to Alberta, to Montana, Idaho, eastern Washington, eastern Oregon, Nevada, Utah, Wyoming, Colorado, New Mexico and Arizona.

Habitat: Moist to dry sites in the mid montane forests. Extends from dry, cool sites in the subalpine fir zone at higher elevations through warmer sites in the grand fir environmental zone to warm, dry sites above the ponderosa pine climax forests. Most abundant in low to middle elevation forests where it forms climax plant communities on warmer, drier sites than true firs and moister, cooler sites than ponderosa pine.

Look Alikes: Use the buds. Douglas-fir buds are singular, sharply pointed and brown; true fir buds (grand and subalpine firs) are rounded, 3 at branch tip and yellowish. Grand fir (***Abies grandis***) needles are in 2-ranked flat spray; are thicker, broader and do not contain stomatal bloom on top of leaf; subalpine fir (***A. lasiocarpa***) has needles spirally arranged like Douglas-fir but leaves are upturned to spiral rather than oriented spirally.

Indicator Value: Type indicator for Douglas-fir plant associations. Occupies grand fir climax communities in early and mid seral stages when sites are warmer. Absent from ponderosa pine and subalpine fir climax communities except as incidental occupant of microsites.

Miscellany: Valuable for timber products (lumber, plywood, ties, general construction, firewood). Provides valuable cover and foraging habitat for deer and elk. Squirrels use the seeds and provide caches. Songbirds using seeds are Clark's nutcracker, nuthatches, crossbills, juncos, and siskins. Blue grouse consume the needles. Grown for Christmas trees and landscaping. On drier sites, dwarf-mistletoe attacks foliage and forms brooms. Western spruce budworm and tussock moth are most serious insect pests. Fire susceptibility is high on young trees; older trees become more resistant as bark thickens. Often replaced by crown fires at the moist end of occurrence. Underburns are more frequent where Douglas-fir occurs in drier habitats. Used by Native Americans for lumber; roots for basket weaving; fresh needles for tea.

C. Johnson

Douglas-fir

***Pseudotsuga menziesii* (var. *glauca*)** **PSMEG**

Habit: A coniferous tree (usually 130-150 ft. tall); crown is compact, pyramidal with branches ascending and drooping; leader stiffly erect.

Big Tree: National Champion - Ochoco NF (Ht. - 158', Circum. - 282", Spread - 55', Points - 454).

Idaho Champion - Coeur d'Alene NF (Ht. - 150', Circum. - 218", Spread - 35', Points - 377).

Wallowa-Whitman Champion - Pine RD (Ht. - 203', Circum. - 207", Spread - 10', Points - 413).

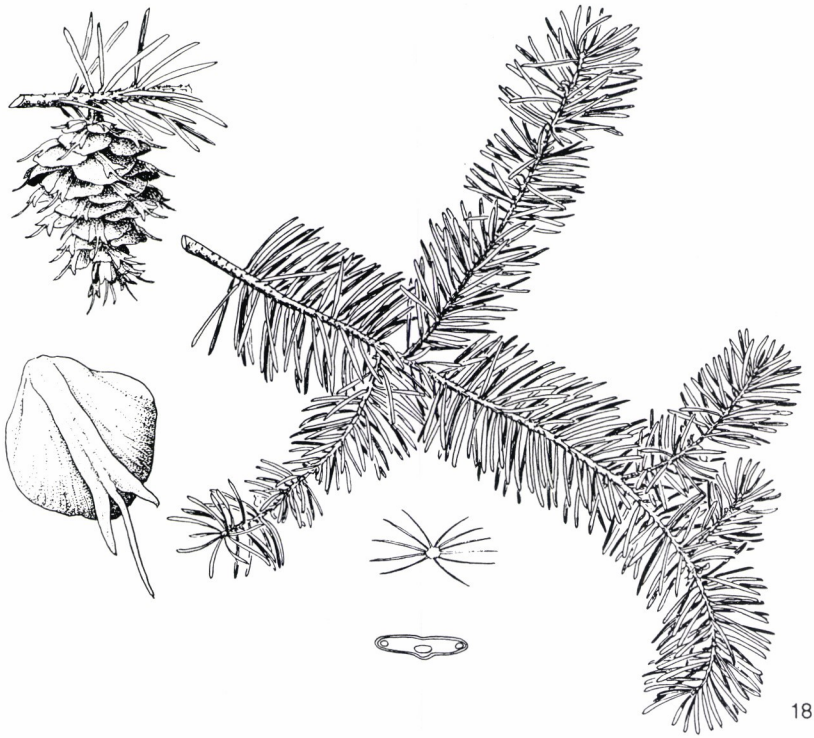
Umatilla Champion - Pomeroy RD (Ht. - 173', Circum. - 236", Spread - 36', Points - 418).

Bark: Thin, smooth with resin blisters (gray) on young trees; rough, thick (3-10 inches) on older trees; reddish-brown; irregular deep furrows with corky grayish to reddish brown layered plates.

Buds: Shiny, sharp pointed, conical, reddish brown to brown.

Leaves: Needles (3/4-1 inch long); blue-green to yellow-green to gray-green; blunt apex; whitish stomata on upper surfaces and 2 stomatal bands below; spiral arrangement of needles on twig.

Fruit: Pendent cones. Staminate orange-red; ovulate yellowish-green to purplish-green; becoming reddish-brown (2-4 inches long) in maturity; a 3-lobed bract extends beyond the scale with center lobe the longest ("pitchforks" or "tridents") (flowers April - May; sheds seed Aug. - Sept.).



Pacific Yew

Taxus brevifolia **TABR**
Family - Taxaceae

Range: Cascades to northern Sierras, across northeast Oregon, western and northern Idaho and northwestern Montana.

Habitat: Moist, cool to wet, well-drained sites beneath closed tree canopies. Very tolerant species.

Look Alikes: Unlike other coniferous species, yew has a pointed leaf apex; arils instead of cones.

Indicator Value: Defines ABGR/TABR/CLUN plant association. Indicates sub surface free water and good spring development opportunities.

Miscellany: Wood is hard and durable. Good for posts in contact with soil. Makes excellent archery bows. Beautiful grain of wood for turned bowls. A good ornamental shrub. Fruits are highly poisonous.

C. Johnson

Pacific Yew

Taxus brevifolia **TABR**

Habit: Large evergreen shrub in northeast Oregon (15-20 feet tall).

Big Tree: National Champion - Lewis County, Wash. (Ht. - 54', Circum. - 180", Spread - 30', Points - 242).

Oregon Champion - Clackamas County (Ht. - 78', Circum. - 119", Spread - 50', Points - 210).

Idaho Champion - Hells Canyon NRA (Ht. - 28', Circum. - 106", Spread - 55', Points - 148).

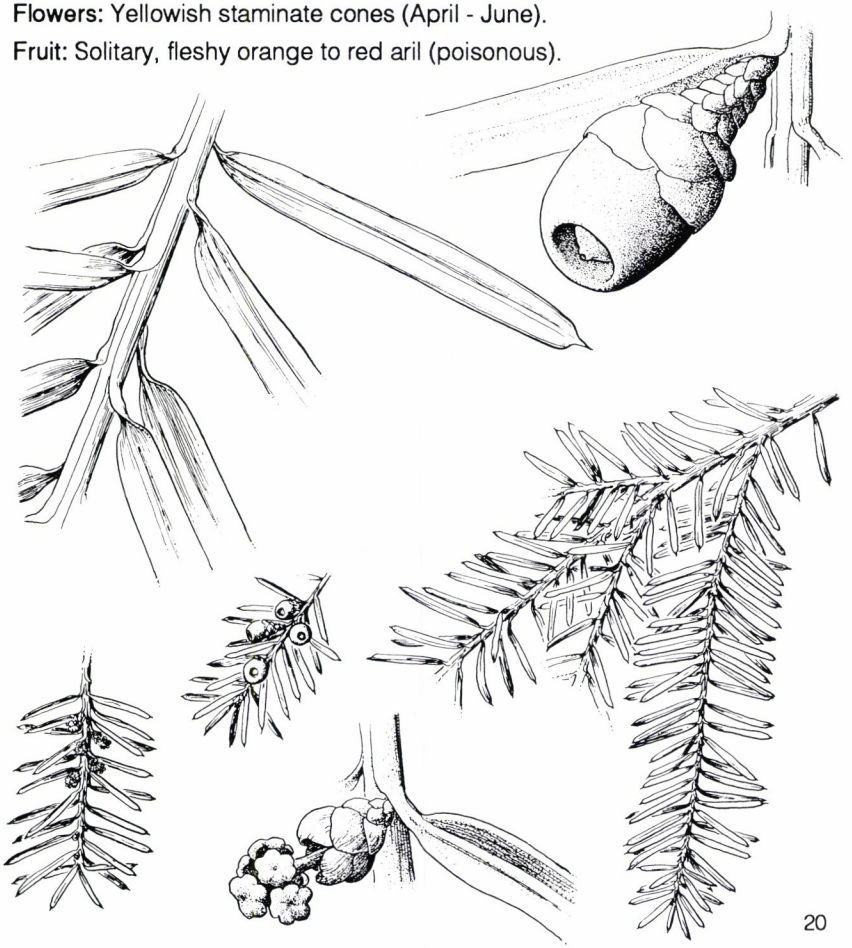
Umatilla NF Champion - Pomeroy RD (Ht. - 33', Circum. - 48", Spread - 20', Points - 86).

Stems and Bark: Bark very thin (1/4 inch thick); scaly with reddish-purple inner bark and dark purplish or reddish-brown outer bark; trunk often contorted.

Leaves: Linear, 1/2-1 inch long, evergreen; dark green upper surface, paler beneath; pointed apex (mucronate), appears 2-ranked on stem.

Flowers: Yellowish staminate cones (April - June).

Fruit: Solitary, fleshy orange to red aril (poisonous).



Mountain Hemlock

Tsuga mertensiana **TSME**
Family - Pinaceae

Range: Alaska to California, throughout higher mountains of western Oregon, northern Washington, northern Idaho, western Montana, northeast Oregon to north central Nevada.

Habitat: Subalpine to alpine forests and timberlines (where dwarfed). Occurs on moist, well drained soils (colluvium, alluvium). Confined to northerly and easterly slopes where moisture is retained late into summer. Prominent in a cornice forest where deep, lingering snowpacks provide ideal growing conditions.

Look Alikes: May be confused with western hemlock (***Tsuga heterophylla***) which has needles of differing lengths arranged in 2-ranks on the twig and cones less than 1 inch long. Leaves appear in starlike rossettes on lateral branches of mountain hemlock.

Indicator Value: Type indicator for mountain hemlock plant associations (TSME/VASC, TSME/VAME). Subalpine fir and Engelmann spruce often associated. Often forms pure stands. Successional timeframe is very slow. Limited silvicultural opportunities due to cold soil, frost, short growing season, deep snowpacks.

Miscellany: Provides excellent hiding and thermal cover for wild mammals; important for watershed protection. Used as an ornamental in landscaping with its bluish compact foliage, starlike needle pattern and slow growth. Highly susceptible to laminated root rot (***Phellinus weirii***). Very tolerant of frost. Prone to windthrow due to shallow root system. Stands usually replaced by fire; trees easily killed by fire. Buds used by blue grouse, seeds by siskins and chickadees, twigs and leaves by mountain goat. Native Americans made tea from fresh needles.

K. Urban

Mountain Hemlock

Tsuga mertensiana **TSME**

Habit: Coniferous tree (100-130 ft. tall); narrow crown with drooping leader (buggy whip top).

Big Tree: National Champion - Alpine County, Calif. (Ht. - 113', Circum. - 277", Spread - 44', Points - 401).

Idaho Champion - Shoshone County (Ht. - 136', Circum. - 202", Spread - 34', Points - 347).

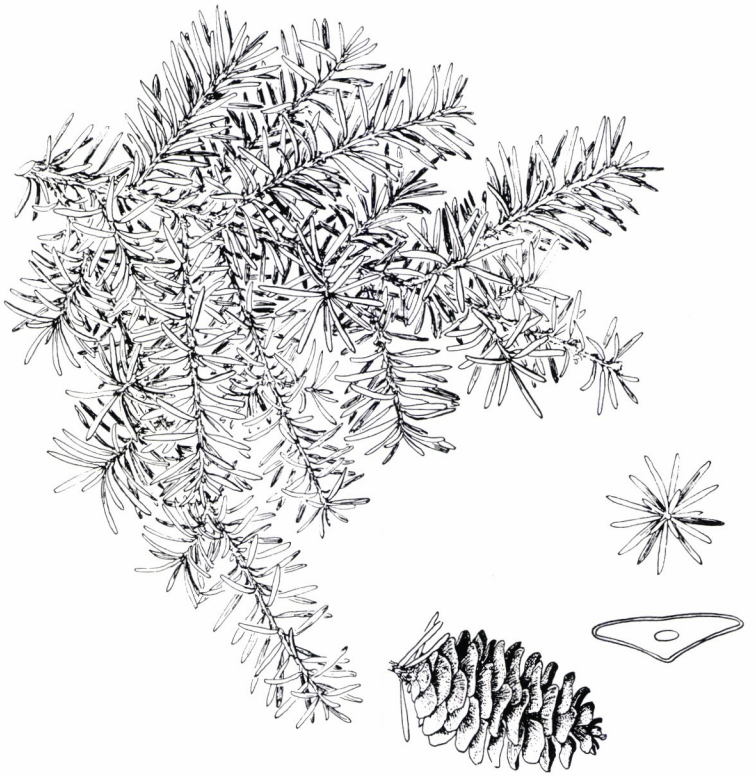
Wallowa-Whitman Champion - La Grande RD (Ht. - 85', Circum. - 122", Spread - Inc., Points - Inc.).

Bark: Dark purplish to reddish brown; deep furrows with narrow rounded ridges; 1-1 1/2 inches thickness.

Buds: Conical, sharp pointed, red-brown (about 1/8 inch long).

Leaves: Needles; thickened at the center; 4-sided; 1/2-1 inch long; dark green (shade) to bluish green (sun) with stomatal bloom on all surfaces; apex blunt; even-length needles arranged spirally about the twig.

Fruit: Cones. Staminate cones bluish (only 3-4 mm long); ovulate cones brownish-purple to deep purple, turning brown on maturity; cylindric with thin scales (1-3 inches long) about as long as broad (flowers June - July; seed shed Aug. - Oct.).



Grand Fir

Abies grandis **ABGR**

Habit: Coniferous tree (up to 250 ft. tall); narrow, open crown usually rounded.

Big Tree: National Champion - Olympic Nat'l Park, Washington (Ht. - 251', Circum. - 229", Spread - 43', Points - 491).

Oregon Champion - No candidate.

Idaho Champion - Clearwater NF (Ht. - 218', Circum. - 172", Spread - 31', Points - 398).

Wallowa-Whitman Champion - Pine RD (Ht. - 120', Circum. - 218", Spread - Inc., Points - Inc.).

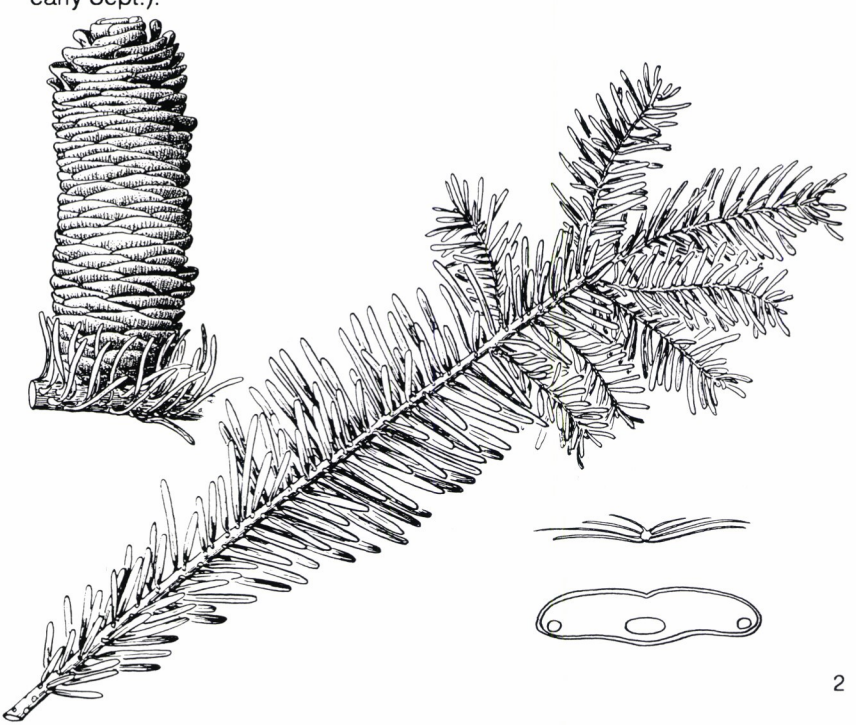
Umatilla Champion - Pomeroy RD (Ht. - 200', Circum. - 236", Spread - 48', Points - 448).

Bark: Smooth, grey to light brown (with resin blisters at early age), ashy brown with 2-3 inch thick furrowed bark in older trees; inner bark dark purplish-red.

Buds: Rounded, 3 at apex of stem, yellow brown.

Leaves: Needles (1 to 1 1/2 inches long); notched at apex; dark green; stomatal bands on lower leaf surface with no band on top (or a short stomatal blotch near the tip on leaf top); two-ranked in flat sprays; resin ducts located near the leaf margin.

Fruit: Cones. Staminate cones yellowish; ovulate cones yellow-green to green (2-4" long); cylindrical; upright on branch; bracts shorter than scales; cones disintegrate on the tree (flowers - May-June; sheds seeds - early Sept.).



Subalpine Fir

Abies lasiocarpa **ABLA2**

Habit: Coniferous tree (up to 100 ft. tall); with a spirelike crown; upper branches short, stiff; lower branches usually drooping. Near timberline tree is greatly dwarfed into shrubby form by environmental elements (cold temperatures, severe winds, snow and ice shearing).

Big Tree: National Champion - Olympic Nat'l Park, Wash. (Ht. - 129', Circum. - 253", Spread - 22', Points - 388).

Oregon Champion - No candidate.

Idaho Champion - Clearwater NF (Ht. - 137', Circum. - 157", Spread - 20', Points - 298).

Wallowa-Whitman NF Champion - Pine RD (Ht. - 121', Circum. - 120", Spread - 33', Points - 249).

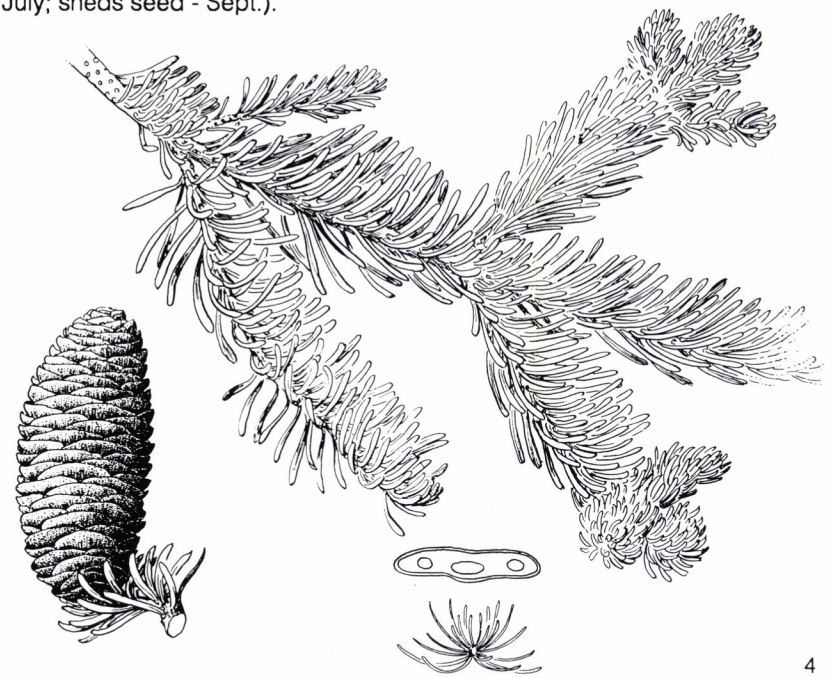
Umatilla NF Champion - Pomeroy RD (Ht. - 153', Circum. - 108", Spread - 25', Points - 268).

Bark: Thin, ash-gray, smooth with resin blisters; on older trees bark is fissured at the base.

Buds: Rounded, 3 at apex of stem, light brown.

Leaves: Needles (1-1 1/2 inches long); bluish-green; rounded tips, stomatal bands on both surfaces; leaves turning upward from spiral arrangement on the twig. Resin ducts located midway between leaf margin and midvein.

Fruit: Cones. Staminate cones bluish (up to 10mm long); Ovulate cones deep purple (2-4 inches long); cylindrical; upright on the branch; bracts shorter than scales. Cones disintegrate on tree (flowers - June to early July; sheds seed - Sept.).



Western Juniper

Juniperus occidentalis **JUOC**

Habit: Rounded, small coniferous tree (up to 30 ft. tall) or bushy shrubs (up to 20 ft. tall). Branches usually extend to the ground.

Big Tree: National Champion - Stanislaus NF, Calif. (Ht. - 86', Circum. - 480", Spread - 58', Points - 581).

Oregon Champion - Redmond, OR. (Ht. - 90', Circum. - 116", Spread - 38', Points - 216).

Idaho Champion - Owyhee County (Ht. - 57', Circum. - 205", Spread - 46', Points - 273).

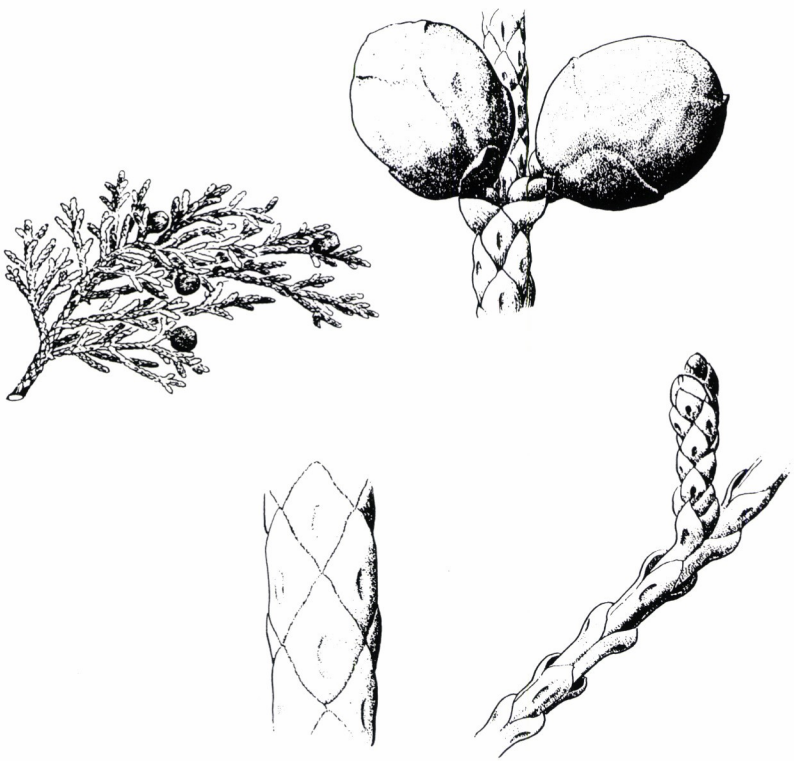
Wallowa-Whitman NF Champion - Wallowa Valley RD (Ht. - Inc., Circum. - 151", Spread - Inc., Points - Inc.).

Umatilla NF Champion - Heppner RD (Ht. - 63', Circum. - 191", Spread - 40', Points - 264).

Bark: Stringy and furrowed, thin; grayish-brown with reddish-brown inner bark.

Leaves: Scale-like, opposite or in 3's acute (1/8" long); gray-green with a prominent gland on upper leaf surface (usually with a resin droplet).

Fruit: Cones. Ovulate cones bluish-black, round (1/4"); covered with glaucous bloom (flowers May-June).



Western Larch

Larix occidentalis **LAOC**

Habit: A large coniferous tree (140-180 ft. tall); a long, clear bole with a short crown of horizontal, radiating branches.

Big Tree: National Champion - Libby, Montana (Ht. - 175', Circum. - 233", Spread - 37', Points - 417).

Oregon Champion - Ochoco NF (Ht. - 62', Circum. - 257", Spread - 48', Points 331).

Idaho Champion - Latah County (Ht. - 142', Circum. - 239", Spread - 22', Points - 387).

Wallowa-Whitman NF Champion - La Grande RD (Ht. - 162', Circum. - 234", Spread - 36', Points - 405).

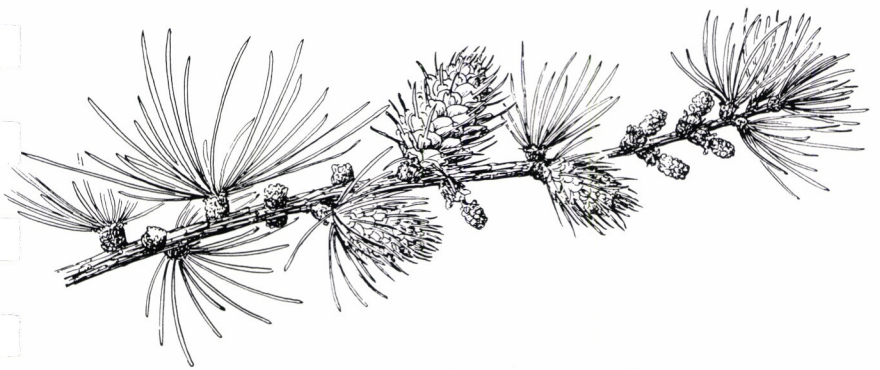
Umatilla NF Champion - Heppner RD (Ht. - 177', Circum. - 212", Spread - 25', Points - 396).

Bark: Thin, scaly grayish-brown on young trees; thick (3-6 inches) flattened plates between deep furrows on older trees. Yellowish brown older bark resembles ponderosa pine bark.

Buds: Rounded (1/8 inch); chestnut brown.

Leaves: Our only conifer with deciduous needles (15-30 bunched in a spur); pale green; 1-2 inches long. Turn brilliant yellow in autumn before falling.

Fruit: Cones. Staminate cones yellow (1/2 inch long); ovulate cones oblong (1 inch long); scales reddish-brown; reflexed scales; bracts with prominent central spine are longer than the scales (flowers May-June; seed shed Sept. - Oct.)



Engelmann Spruce

Picea engelmannii **PIEN**

Habit: Coniferous tree (up to 180 ft. tall); crown narrow and pyramidal; branches whorled and extending to the ground on open-growing trees.

Big Tree: National Champion - Payette Lake, Idaho (Ht. - 179', Circum. - 290", Spread - 43', Points - 480).

Oregon Champion - Willamette NF (Ht. - 140', Circum. - 247", Spread - 34', Points - 396).

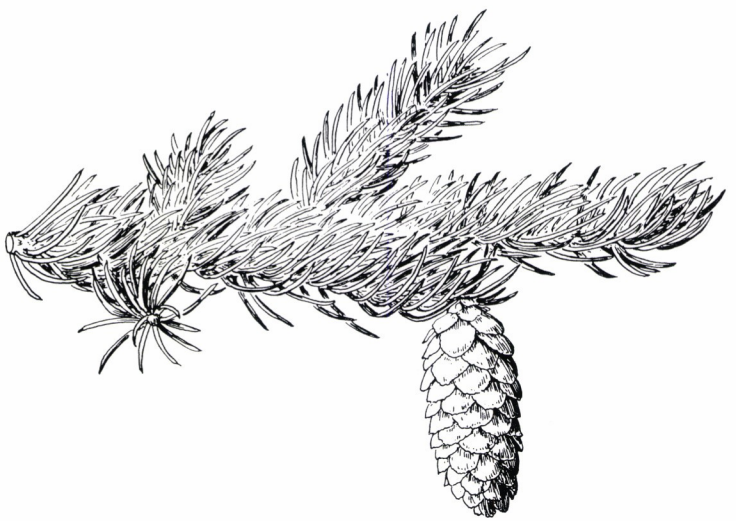
Wallowa-Whitman NF Champion - Pine RD (Ht. - 150', Circum. - 190", Spread - 34', Points - 349).

Umatilla NF Champion - Pomeroy RD (Ht. - 196', Circum. - 152", Spread - 25', Points - 354).

Bark: Thin, loose, scaly; reddish to purplish brown.

Leaves: Needles; rigid, 1-2 inches long, sharply pointed, bluish-green; whorled on the twig; 4-angled; 2 stomatal bands on top and bottom; small knobs remain on the twig when needle is shed.

Fruit: Cones. Staminate cones are yellow (10-15mm long); ovulate cones are oblong (1-2 inches long), light chestnut brown with thin, papery scales; scale margin serrated; blunt bract only 1/3 length of scale; hang pendulous on branches (flowers June-July; seed shed Sept. - Oct.).



Whitebark Pine

Pinus albicaulis **PIAL**

Habit: Stunted to contorted subalpine conifer. Only 15-50 ft. tall. At timberline the trees may become prostrate from severe snow loading, wind and ice shearing.

Big Tree: National Champion - Sawtooth NRA, Idaho (Ht. - 69', Circum. - 331", Spread - 47', Points - 412).

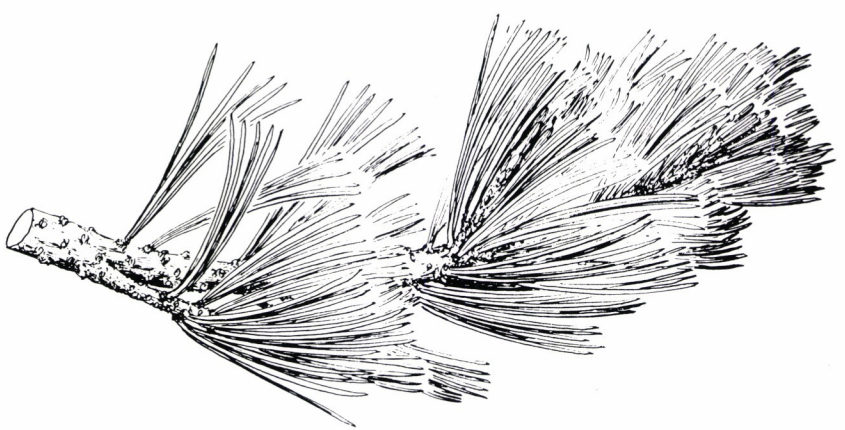
Oregon Champion - Deschutes NF (Ht. - 90', Circum. - 54", Spread - 35', Points - 153).

Wallowa-Whitman NF Champion - Eagle Cap Wilderness Area (Ht. - 80', Circum. - 88", Spread - 34', Points - 177).

Bark: Thin, with whitish scales over a red-brown inner bark.

Leaves: Needles in fascicles of 5; stiff (1-3 inches long); green to yellow-green; clustered at the ends of branches.

Fruit: Sessile cones. Staminate cones red; ovulate cones deep red to purple; ovoid (2-4 inches long); thick scales with upturned point; cones tend to remain closed on tree and disintegrate rather than fall to ground intact (flowers June - July).



Lodgepole Pine

***Pinus contorta* (var. *latifolia*)** **PICOL**

Habit: Small coniferous tree (up to 80 ft. tall) with a clear slender bole in dense stands; short crown at top.

Big Tree: National Champion - Winema NF, Oregon (Ht. - 125', Circum. - 148", Spread - 53', Points - 286).

Idaho Champion - Valley County (Ht. - 135', Circum. - 137", Spread - 41', Points - 282).

Wallowa-Whitman NF Champion - Unity RD (Ht. - 119', Circum. - 109", Spread - 31', Points - 236). Pine RD (Ht. - 112', Circum. - 117", Spread - 26', Points - 236).

Umatilla NF Champion - Pomeroy RD (Ht. - 90', Circum. - 93", Spread - 28', Points - 190).

Bark: Thin, scaly, gray to dark gray (less than 1 inch thick).

Buds: Ovoid (1/4 inch); chestnut-brown, resinous.

Leaves: Needles in fascicles of 2 (1-3 inches long); stiff - often twisted; green to yellow green.

Fruit: Cones. Staminate cones reddish green, clustered (8-10mm long). Ovulate cones subsessile (1-2 inches long), ovoid, some opening after second year - others remaining closed and persisting many years on tree; purplish-brown; basal scales knoblike; armed with long prickle (flowers April - June; sheds seeds Sept. - Oct.)

Ponderosa Pine

***Pinus ponderosa* (var. *ponderosa*)** **PIPOP**

Habit: Large coniferous tree (up to 180 ft. tall). A clear, symmetrical bole with an open pyramidal to flat-topped crown.

Big Tree: National Co. Champion - Plumas, Calif. (Ht. - 223', Circum. - 287", Spread - 68', Points - 527).

National Co. Champion - Deschutes NF (Ht. 178', Circum. - 342", Spread - 45', Points - 531).

Idaho Champion - Valley County (Ht. - 138', Circum. - 277", Spread - Inc., Points - Inc.).

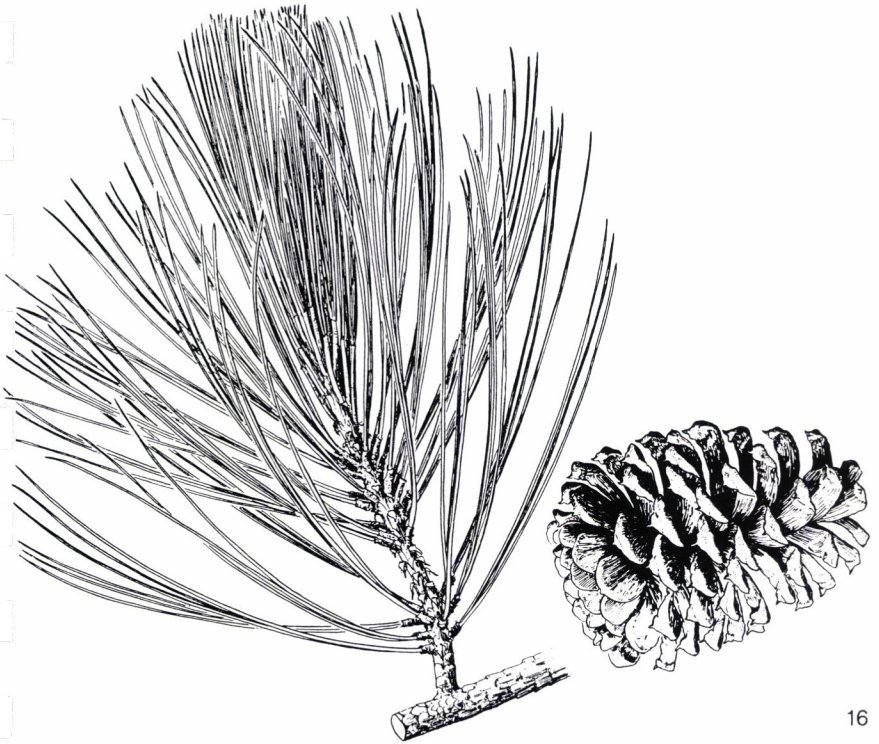
Wallowa-Whitman Champion - Pine RD (Ht. - 180', Circum. - 210", Spread - 41', Points - 400).

Umatilla Champion - Walla Walla RD (Ht. - 166', Circum. - 220", Spread - 37', Points - 395).

Bark: Dark brown to black on young trees, becoming yellow-brown to cinnamon-red on mature trees. Large flat plates between deep furrows on older trees. Scales of plates look like "jigsaw puzzle" pieces.

Leaves: Needles in fascicles of 3 (5-8 inches long); green to yellow-green; flexible; basal sheath 1/4-3/4 inches long.

Fruit: Cones. Staminate cones yellow to purplish and strongly clustered; ovulate cones deep reddish-purple; maturing reddish-brown to brown (3-6 inch) ovate, sessile cones with chocolate brown scales containing a thickened prickly tip (flowers May-June; sheds seed - Sept.).



Douglas-fir

***Pseudotsuga menziesii* (var. *glauca*)** **PSMEG**

Habit: A coniferous tree (usually 130-150 ft. tall); crown is compact, pyramidal with branches ascending and drooping; leader stiffly erect.

Big Tree: National Champion - Ochoco NF (Ht. - 158', Circum. - 282", Spread - 55', Points - 454).

Idaho Champion - Coeur d'Alene NF (Ht. - 150', Circum. - 218", Spread - 35', Points - 377).

Wallowa-Whitman Champion - Pine RD (Ht. - 203', Circum. - 207", Spread - 10', Points - 413).

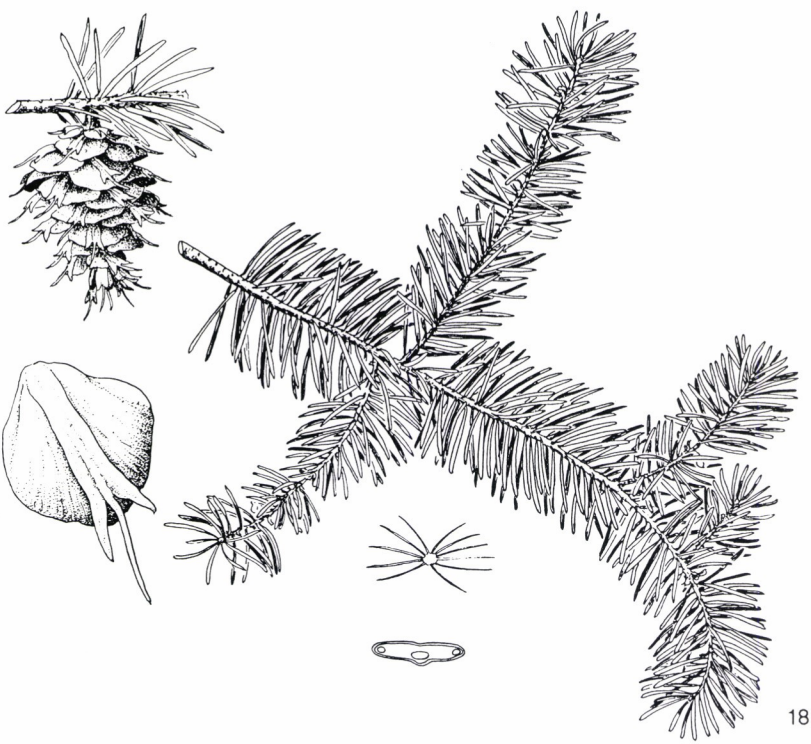
Umatilla Champion - Pomeroy RD (Ht. - 173', Circum. - 236", Spread - 36', Points - 418).

Bark: Thin, smooth with resin blisters (gray) on young trees; rough, thick (3-10 inches) on older trees; reddish-brown; irregular deep furrows with corky grayish to reddish brown layered plates.

Buds: Shiny, sharp pointed, conical, reddish brown to brown.

Leaves: Needles (3/4-1 inch long); blue-green to yellow-green to gray-green; blunt apex; whitish stomata on upper surfaces and 2 stomatal bands below; spiral arrangement of needles on twig.

Fruit: Pendent cones. Staminate orange-red; ovulate yellowish-green to purplish-green; becoming reddish-brown (2-4 inches long) in maturity; a 3-lobed bract extends beyond the scale with center lobe the longest ("pitchforks" or "tridents") (flowers April - May; sheds seed Aug. - Sept.).



Pacific Yew

Taxus brevifolia **TABR**

Habit: Large evergreen shrub in northeast Oregon (15-20 feet tall).

Big Tree: National Champion - Lewis County, Wash. (Ht. - 54', Circum. - 180", Spread - 30', Points - 242).

Oregon Champion - Clackamas County (Ht. - 78', Circum. - 119", Spread - 50', Points - 210).

Idaho Champion - Hells Canyon NRA (Ht. - 28', Circum. - 106", Spread - 55', Points - 148).

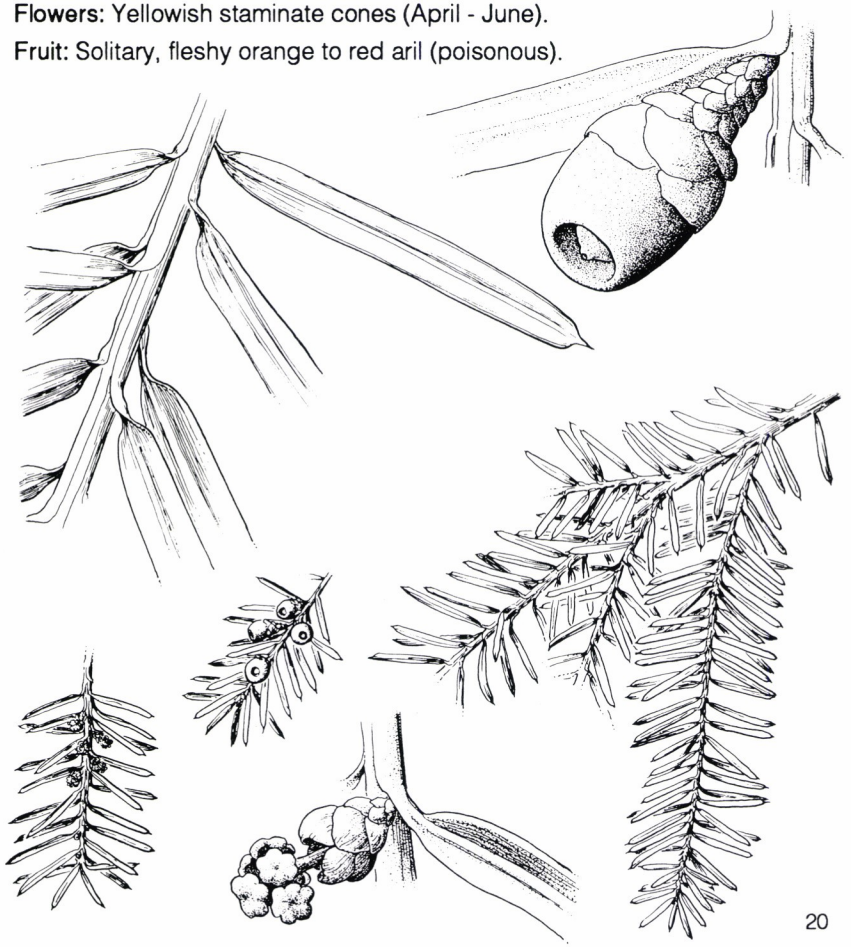
Umatilla NF Champion - Pomeroy RD (Ht. - 33', Circum. - 48", Spread - 20', Points - 86).

Stems and Bark: Bark very thin (1/4 inch thick); scaly with reddish-purple inner bark and dark purplish or reddish-brown outer bark; trunk often contorted.

Leaves: Linear, 1/2-1 inch long, evergreen; dark green upper surface, paler beneath; pointed apex (mucronate), appears 2-ranked on stem.

Flowers: Yellowish staminate cones (April - June).

Fruit: Solitary, fleshy orange to red aril (poisonous).



Mountain Hemlock

Tsuga mertensiana **TSME**

Habit: Coniferous tree (100-130 ft. tall); narrow crown with drooping leader (buggy whip top).

Big Tree: National Champion - Alpine County, Calif. (Ht. - 113', Circum. - 277", Spread - 44', Points - 401).

Idaho Champion - Shoshone County (Ht. - 136', Circum. - 202", Spread - 34', Points - 347).

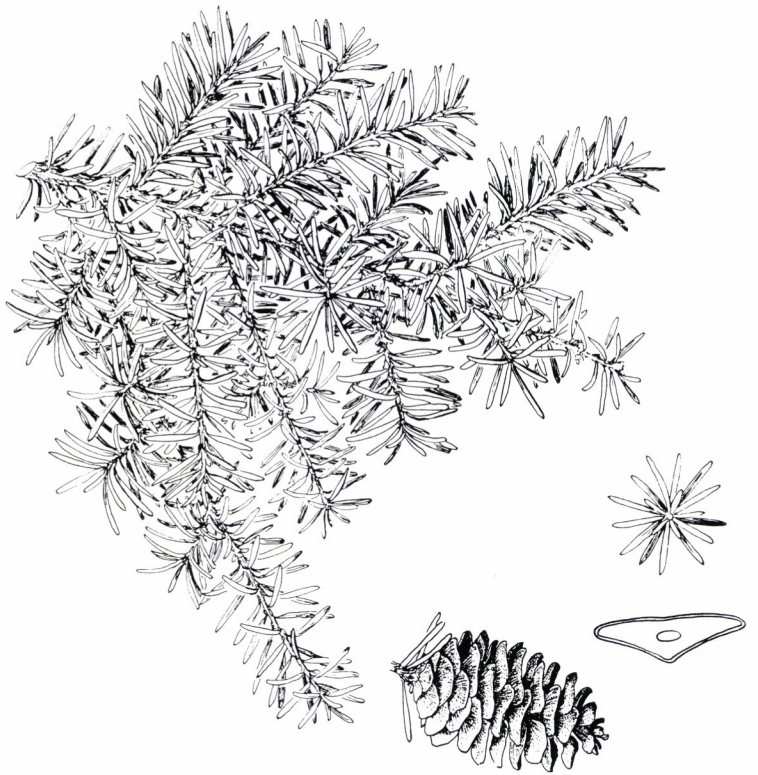
Wallowa-Whitman Champion - La Grande RD (Ht. - 85', Circum. - 122", Spread - Inc., Points - Inc.).

Bark: Dark purplish to reddish brown; deep furrows with narrow rounded ridges; 1-1 1/2 inches thickness.

Buds: Conical, sharp pointed, red-brown (about 1/8 inch long).

Leaves: Needles; thickened at the center; 4-sided; 1/2-1 inch long; dark green (shade) to bluish green (sun) with stomatal bloom on all surfaces; apex blunt; even-length needles arranged spirally about the twig.

Fruit: Cones. Staminate cones bluish (only 3-4 mm long); ovulate cones brownish-purple to deep purple, turning brown on maturity; cylindric with thin scales (1-3 inches long) about as long as broad (flowers June - July; seed shed Aug. - Oct.).



SHRUBS

Rocky Mountain Maple

***Acer glabrum* (var. *glabrum*)** **ACGLG**
Family - Aceraceae

Range: Usually found east of the Cascades in Washington and Oregon. Extends east to Idaho and western Montana where ***Acer glabrum* var. *douglasii*** becomes more prevalent. Both varieties occur in the Blue and Wallowa Mountains.

Habitat: Moist seepage sites under grand fir and Douglas-fir communities. Indicates higher productivity sites in PSME/PHMA communities. Also occurs in riparian communities from low elevation canyon bottoms to mid-montane streamsides.

Look Alikes: Our only maple in the inland Pacific Northwest. May be confused with ninebarks (***Physocarpus* spp.**), currants and gooseberries (***Ribes* spp.**). Maple leaves are opposite; alternate on the look alikes.

Indicator Value: Indicates ABGR/ACGL and PSME/ACGL-PHMA plant associations. Common in ABGR/GYDR, ABGR/POMU-ASCA7 and PSME/HODI plant associations.

Miscellany: Persists in open savanna as early to mid seral species in true fir communities. Used by Native Americans for fabricating vessels and smoking of meats. Browsed readily by deer and elk.

C. Johnson

Rocky Mountain Maple

***Acer glabrum* (var. *glabrum*)** **ACGLG**

Habit: Deciduous shrub or small tree 3 to 33 feet tall.

Big Tree: National Champion - Hood River, Oregon (Ht. - 63', Circum. - 42", Spread - 26', Points - 112).

Idaho Champion - Sawtooth NF (Ht. - 25', Circum. - 17", Spread - 15', Points - 46).

Wallowa-Whitman NF Champion - Baker RD (Ht. - Inc., Circum. - 37", Spread - Inc., Points - Inc.).

Umatilla NF Champion - Walla Walla RD (Ht. - 37', Circum. - 34", Spread - 21', Points - 76).

Stems: Smooth, reddish-brown bark turning gray with age; buds opposite, red, ovate, often paired.

Leaves: Opposite, deciduous, simple, palmately lobed (3-5 main veins); 2-5 inches in diameter; dark green above (reddish tints) and paler below; petiole-green (var. ***glabrum***) or red (var. ***douglasii***) and same length as leaf blade.

Flowers: Small, greenish-yellow in axillary clusters (April - June).

Fruit: Double samara, 1 inch long, joined at acute or right angle.

Thinleaf Alder

***Alnus incana* (old-*tenuifolia*)** **ALIN**
Family - Betulaceae

Range: East of Cascade Crest to Rocky Mountains of Idaho and Montana.

Habitat: Indicates seepages and areas of high water table. Prevalent along streams and meadow margins at lower montane elevations.

Look Alikes: Readily confused with Sitka alder (***Alnus sinuata***) which has sharply pointed winter buds. Thinleaf alder has rounded, blunt buds.

Indicator Value: An early successional species beneath grand fir series plant associations or an inclusion in late seral stands where sub-irrigation occurs. Seep and water-logged sites within upland grand fir series plant associations. May indicate potential reforestation difficulty.

Miscellany: A nitrogen-fixing plant. Used by Native Americans as astringent and a tonic; a vegetable coloring; basketry and cordage. Low to moderately palatable to wild and domestic stock.

C. Johnson

Thinleaf Alder

Alnus incana **ALIN**

Habit: A large shrub usually 15 to 20 feet tall which tends to be thicket-forming.

Big Tree: National Champion - Church Canyon, N. Mexico (Ht. - 57', Circum. - 60", Spread - 37', Points - 126).

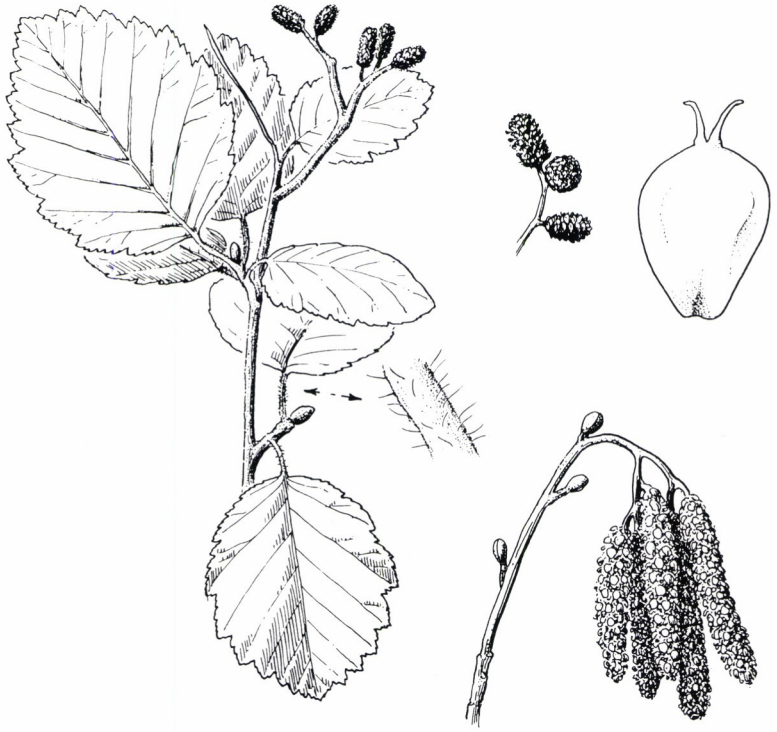
Idaho Champion - Payette NF (Ht. - 30', Circum. - 32", Spread - 20', Points - 67).

Stems: Hairy at first before maturing; grayish-brown; orangish lenticels on bark; branching is alternate.

Leaves: Deciduous; alternate; doubly serrate margin with acute or rounded tip; dull green color. Leaves average 2-4 inches with 1/2-1 inch long petioles.

Flowers: Catkins develop before leaves; male catkins are clustered and drooping; female catkins are small, conelike clusters on short stalks (April - May).

Fruit: Small, wingless nutlet enclosed in female catkins.



Red Alder

Alnus rubra **ALRU**
Family - Betulaceae

Range: West of the Cascades from southern Alaska to California. From the northern panhandle to the Clearwater River in Idaho. Limited to low elevation canyons in northern Blue Mountains of Oregon (especially Mill Cr., Tiger Cr., Walla Walla River, Umatilla River).

Habitat: Along streams, moist bottoms and toeslopes of northern Blue Mountains.

Look Alikes: Buds are rounded and stalked differentiating it from Sitka alder (***Alnus sinuata***) which has sharply pointed unstalked buds. To differentiate from thinleaf alder (***A. incana***) which also has stalked, rounded buds - look for inrolled leaf margins on underside of red alder leaves.

Indicator Value: Occurs in the grand fir/sword fern-ginger plant association and along riparian bottoms and streamsides. Reflects the influence of warm, maritime climates prevalent at lower elevations in the northwestern Blue Mtns.

Miscellany: A nitrogen-fixing plant. Used by Native Americans as an astringent and a tonic; a vegetable coloring; basketry and cordage. Low to moderately palatable to wild and domestic stock. Seeds used by siskins.

C. Johnson

Red Alder

Alnus rubra **ALRU**

Habit: A tree usually under 100 ft. tall (commonly 60-80 ft.) with open pyramidal crown.

Big Tree: National Champion - Clatsop County, Oregon (Ht. - 104', Circum. - 245", Spread - 49', Points - 361).

Idaho Champion - Bonner County (Ht. - 110', Circum. - 70", Spread - 44', Points - 191).

Umatilla NF Champion - Walla Walla RD (Ht. - 70', Circum. - 60", Spread - 20', Points - 135).

Stems: New twigs triangular in cross section with triangular orange to brownish red pith.

Leaves: Deciduous; alternate; doubly elliptic with doubly serrate, slightly lobed, inrolled margins; acute at apex; deep green upper surface; glandular, rusty-gray slightly hairy undersurface. Leaves 2-6" long.

Flowers: Catkins develop before the leaves; male catkins are clustered and drooping; female catkins are small, conelike clusters on short stalks (March - April).

Fruit: Nutlet with thin lateral or encircling wings. Enclosed in female catkin (cone).

Sitka Alder

***Alnus sinuata* (old-*sitchensis*)** **ALSI**
Family - Betulaceae

Range: Cascade and Olympic Mountains eastward to Rocky Mountains of Montana and Idaho.

Habitat: Seepages beneath grand fir communities; common throughout subalpine fir communities defining cool, moist environments. Also prevalent at lower montane elevations as a riparian zone species.

Look Alikes: Easily confused with thinleaf alder (***Alnus incana***) which has rounded, blunt buds instead of sharply pointed buds found on Sitka alder.

Indicator Value: Indicates early seral stages of subalpine fir series plant associations and wetter, cooler grand fir series plant associations. May indicate potential reforestation difficulty due to moisture table and coldness of site.

Miscellany: A nitrogen-fixing plant. Used by Native Americans as an astringent and tonic; a vegetable coloring; basketry and cordage. Low to moderately palatable to wild and domestic stock.

C. Johnson

Sitka Alder

Alnus sinuata **ALSI**

Habit: A large shrub usually 10 to 20 feet tall which tends to form thickets.

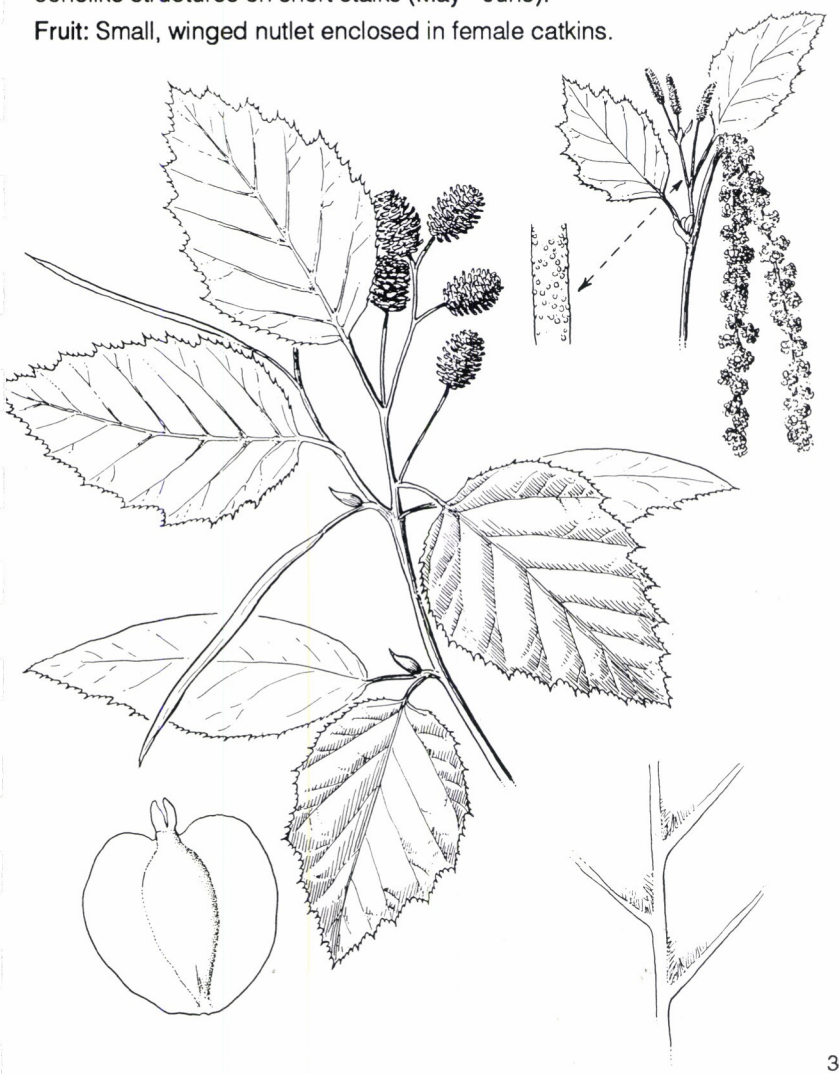
Big Tree: National Champion - Saddle Mt., Oregon (Ht. - 30', Circum. - 21", Spread - 0', Points - 51).

Stems: Shiny brown to yellow brown; lenticels glandular; alternate branching.

Leaves: Deciduous; alternate; doubly serrate margin with acute tip; shiny green color. Leaves average 1-4 inches with 1/2-1 inch long petioles.

Flowers: Male catkins develop before leaves; female catkins develop with leaves; male catkins droop in a cluster; female catkins are semi-woody conelike structures on short stalks (May - June).

Fruit: Small, winged nutlet enclosed in female catkins.



Serviceberry

***Amelanchier alnifolia* (old-*florida*)** **AMAL**
Family - Rosaceae

Range: Widespread throughout the Pacific Northwestern states.

Habitat: Typically on canyon slopes, open forest savanna, and as an early seral species in ponderosa pine-dominated woodlands.

Look Alikes: Hawthornes (***Crataegus* spp.**) have thorns; cherries (***Prunus* spp.**) have glands on the petiole or at leaf base; spiraea (***Spiraea* spp.**) has a distinctive venation and serration to the leaf.

Indicator Value: Indicates early seral stages of ABGR/VAME, ABGR/SPBE. Present in later seral stages of Douglas-fir series plant associations.

Miscellany: Berries are edible. Native Americans dried berries into loaves for later use in soups and stews. Used today in jams, jellies, and wines. Browsed by deer, elk, sheep, and goats. Grouse use berries in summer and buds in winter. One of the first shrubs to flower in the canyons in early spring.

C. Johnson

Serviceberry

Amelanchier alnifolia **AMAL**

Habit: Shrubs or small trees (5-20 feet).

Big Tree: National Champion - Douglas County, Oregon (Ht. - 27', Circum. - 45", Spread - 22', Points - 78).

Idaho Champion - Hells Canyon NRA (Ht. - 32', Circum. - 30", Spread - 23', Points - 68).

Stems: Reddish brown aging grey; alternate branching.

Leaves: Deciduous; alternate; flattened or truncated at the base with coarse dentations on margins above the mid point of leaf; veins are strongly paralleling; blade is 1/2-1 inch long.

Flowers: White petals; racemes of 3 to 20 flowers (March - July).

Fruit: Globose pome; dark purplish; glabrous to glaucous.

Pinemat Manzanita

Arctostaphylos nevadensis **ARNE**
Family - Ericaceae

Range: Cascades of Washington and Oregon eastward to the Blue Mountains.

Habitat: Early seral stands of ponderosa pine, lodgepole pine, and grand fir-dominated communities. Often increases on heavily logged areas.

Look Alikes: Bearberry or kinnikinnick (***Arctostaphylos uva-ursi***) has round leaf tips, a bright red berry, and are more prostrate; twinflower (***Linnaea borealis***) and Oregon boxwood (***Pachistima myrsinites***) have opposite leaves with serrated margins.

Indicator Value: Indicative of sunny locations in high elevation grand fir communities where ponderosa pine, Douglas-fir, larch, and/or lodgepole pine may dominate. Regeneration of tree species in clearcuts with pinemat manzanita may be difficult.

Miscellany: Berries are eaten by wildlife; leaves boiled and used by Native Americans for curative teas, and smoked as a tobacco substitute. Plant is not used by browsing animals. The mat-forming characteristics of this species provides erosion control protection on highly disturbed sites. A fine ground cover for horticulturists. Used for jellies, cobblers, pies, and winemaking.

C. Johnson

Pinemat Manzanita

Arctostaphylos nevadensis **ARNE**

Habit: Trailing evergreen shrub with rooting stems up to 10 inches tall.

Stems: Brownish to reddish with peeling bark.

Leaves: Evergreen; alternate; thick; 1 inch long, leathery; spatulate form with a sharp-pointed tip; dark green above.

Flowers: White to pinkish-white; urn-shaped; few-flowered terminal racemes (June - July).

Fruit: Round, brownish-red berry-like drupe.

Bearberry, Kinnikinnick

Arctostaphylos uva-ursi **ARUV**
Family - Ericaceae

Range: Cascades throughout Oregon and Washington to the Rocky Mountains.

Habitat: Sunny stands of ponderosa pine, lodgepole pine, and grand fir-dominated communities. Common on sandy soils and glacial till in cool, moist canyon bottoms.

Look Alikes: Pinemat manzanita (***Arctostaphylos nevadensis***) has a pointed leaf tip; brown-red berry; and is more erect. Twinflower (***Linnaea borealis***) and Oregon boxwood (***Pachistima myrsinites***) have opposite leaves with serrated margins.

Indicator Value: Cool, moist grand fir communities, under lodgepole pine where cold air drainage occurs. Regeneration may be difficult following logging of bearberry sites.

Miscellany: Berries edible by wildlife. Leaves used by Native Americans as a tobacco substitute, for a curative tea, and as a cider. Unpalatable to browsing animals. Used today for jellies, cobblers, pies, and wines. Its mat-forming characteristics make it good for erosion control protection on highly disturbed sites and as a good garden ground cover.

C. Johnson

Bearberry, Kinnikinnick

Arctostaphylos uva-ursi **ARUV**

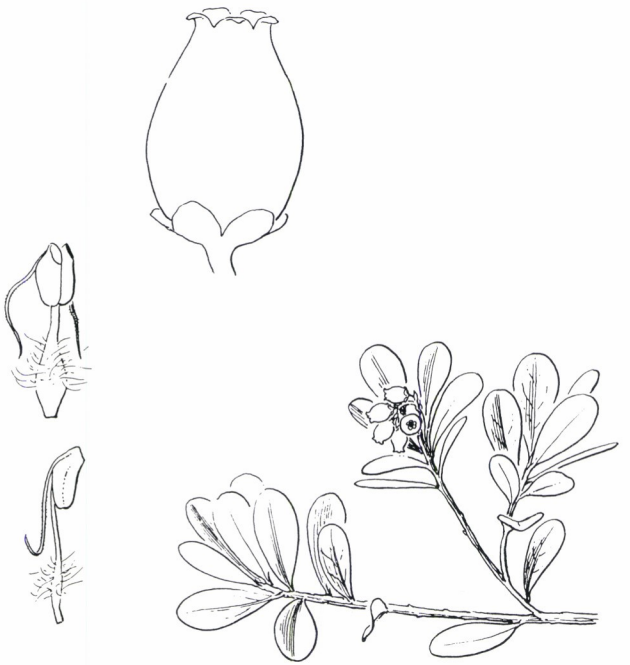
Habit: Trailing evergreen shrub with rooting stems up to 6 inches tall.

Stems: Brownish to reddish with shredding bark.

Leaves: Evergreen; alternate; thick and leathery; 1/2-1 inch long; spatulate with entire margins and a rounded tip; dark green above.

Flowers: White to pinkish; urn-shaped; few-flowered racemes (June - July).

Fruit: Round, bright red berry-like drupe.



Low Sagebrush

***Artemisia arbuscula* (ssp. *arbuscula*)** **ARAR**
Family - Compositae

Range: Washington to California (east of Cascades); eastward to Montana, Wyoming, Colorado and New Mexico. In the Pacific Northwest it occurs in the northern Great Basin of central Oregon, in Cascade and Siskiyou Mtns., and in the western part of the Columbia Plateau of Washington.

Habitat: Dry, rocky slopes and ridges in the mountains; dry foothills and flats. Occurs on soils deeper than scablands (10 inches); and of less depth than deeper soils containing big sagebrush (greater than 24 inches average).

Look Alikes: Bitterbrush (***Purshia tridentata***) lacks silvery, hairy leaves and has no sage aroma. Other shrubby sagebrush species found in the inland northwest can be differentiated as follows: big sagebrush (***Artemisia tridentata***) - taller (over 16" tall) with wider panicle inflorescence; stiff sagebrush (***A. rigida***) - leaves deeply cleft; silver sage (***A. cana***) - leaves entire.

Indicator Value: Type indicator for low sagebrush plant associations in the southern and west central Blue Mountains (ARAR/FEID-AGSP; ARAR/POSA3). Common beneath western juniper with bitterbrush.

Miscellany: Important to mule deer, pronghorns, sage grouse (especially in spring and winter). Ground squirrels and rabbits utilize the foliage and seeds. Little used by cattle; sheep use it during fall and winter. Does not sprout following fire; but does disperse abundant seed. Fire does not carry well in low sagebrush communities. Seeds may be dried and made into flour or eaten raw. Leaves can be boiled for tea for colds, sore eyes and as a hair tonic.

C. Johnson

Low Sagebrush

***Artemisia arbuscula* (ssp. *arbuscula*)** **ARAR**

Habit: Low shrub (up to 16 inches tall) with rounded form. Erect stems. Taprooted with spreading fibrous roots.

Leaves: Deciduous; alternate; hairy; wedge-shaped with 3 lobes on tip (approx. 1/2 inch long).

Flowers: Narrow, spikelike (less than 3/4 inch wide); flowers sessile in leaf axils; bracts shingle-like in orientation; yellow (July - Sept.).

Fruit: Glabrous achene.

Stiff Sagebrush

Artemisia rigida **ARRI**
Family - Compositae

Range: Eastern Washington and eastern Oregon to northern California; eastward to Idaho and western Wyoming.

Habitat: Lithosols (shallow, stony soils less than 10" deep over impervious bedrock) of basaltic origin. Dry, rocky ridges, foothills and plains.

Look Alikes: Differentiate from bitterbrush (***Purshia tridentata***) and the rabbitbrushes (***Chrysothamnus* spp.**) by pungent sage aroma and deeply dissected leaves. Other sagebrushes can be differentiated as follows: big sagebrush (***Artemisia tridentata***) has lobed leaf tips; silver sage (***A. cana***) has entire leaves.

Indicator Value: Scablands (lithosols) where underlying bedrock is slightly fractured allowing tap-rooted stiff sage to establish. Environment is extremely harsh with saturated soils in spring followed by hot, dry, desiccated soils in summer. Defines the stiff sagebrush/Sandberg's bluegrass (ARRI/POSA3) plant association.

Miscellany: Winter range use by deer; increases onto deeper soils in degraded bunchgrass plant associations. Decreases with heavy and frequent hedging by deer in late fall and early winter. Seeds used by sage grouse, rabbits, ground squirrels, mice. Nez Perce drank tea from bark and leaves to treat tuberculosis.

C. Johnson

Stiff Sagebrush

Artemisia rigida **ARRI**

Habit: Low shrub (12-15" tall) with rounded form; erect stems from a knarled, many branched woody base. Tap-rooted with many spreading fibrous roots near the soil surface.

Stems: Erect; from a many branched woody base (often knarled and somewhat prostrate at the base).

Leaves: Deciduous; fine gray hairs; deeply divided into 3-5 narrow segments (1/2 - 1 1/2" long); upper leaves may be entire while on the same plant divided leaves occur.

Flowers: Spike-like inflorescence; flowers sessile in leaf axils; yellow; leaves usually far surpassing the small flower heads (September - October).

Fruit: Glabrous achenes.

Mountain Big Sagebrush

***Artemisia tridentata* (ssp. *vaseyana*)** **ARTRV**
Family Compositae

Range: Widespread in the Pacific Northwest at higher montane elevations east of the Cascades.

Habitat: Rocky and gravelly basaltic soils with special affinity to granitic substrates.

Look Alikes: Basin big sagebrush (***A. tridentata* spp. *tridentata***) has inflorescences staggered on the plant. Bitterbrush (***Purshia tridentata***) has dark green tri-lobed leaves that are not hairy.

Indicator Value: Defines the PIPO/ARTRV/FEID-AGSP plant association. Higher elevations of sagebrush shrublands or tree savanna where whitebark pine, subalpine fir, and lodgepole pine occur. Sites are generally unsuited for silvicultural practices. Severe tree regeneration difficulties.

Miscellany: Lightly used by deer. Native Americans use for shelter, cordage, basketry. Fruits can be used fresh, dried, or pounded into a meal.

C. Johnson

Mountain Big Sagebrush

***Artemisia tridentata* (ssp. *vaseyana*)** **ARTRV**

Habit: Medium-sized aromatic shrubs usually 2 to 4 feet tall.

Stems: Silvery-gray in youth; becoming grayish brown; bark shreds on older stems; tends to root when branches touch ground.

Leaves: Deciduous and winter persistent leaves; alternate; 1/2 to 1 1/2 inches long; cuneate (triangular); 3-lobed apex; silvery green above and below; strong scented.

Flowers: Small, yellow; tubular (August - September).

Fruit: Small achene.

Cascades Oregon-Grape

Berberis nervosa **BENE**
Family - Berberidaceae

Range: Generally west of the Cascades from British Columbia to central California. Disjunct in the northern Blue Mountains.

Habitat: Moist, well drained sites in semi-open grand fir forests.

Look Alikes: Tall Oregon-grape (***Berberis aquifolium***) and creeping Oregon-grape (***B. repens***) have pinnately nerved leaves of 5-9 in number. Leaflets of Cascades Oregon-grape are greater in number (more than 9) and palmately veined.

Indicator Value: Cool, moist growing conditions found where maritime climatic influence permits disjunct plant communities common to westside of Oregon and Washington (i.e., ABGR/POMU-ASCA3, ABGR/TABR/CLUN, ABGR/CLUN).

Miscellany: Value as browse is low. Berries used by birds and mammals. Native Americans use berries for medicinal teas (stomach disorders). Roots used for dyes (basketry). A popular ornamental (aggressive).

C. Johnson

Cascades Oregon-Grape

Berberis nervosa **BENE**

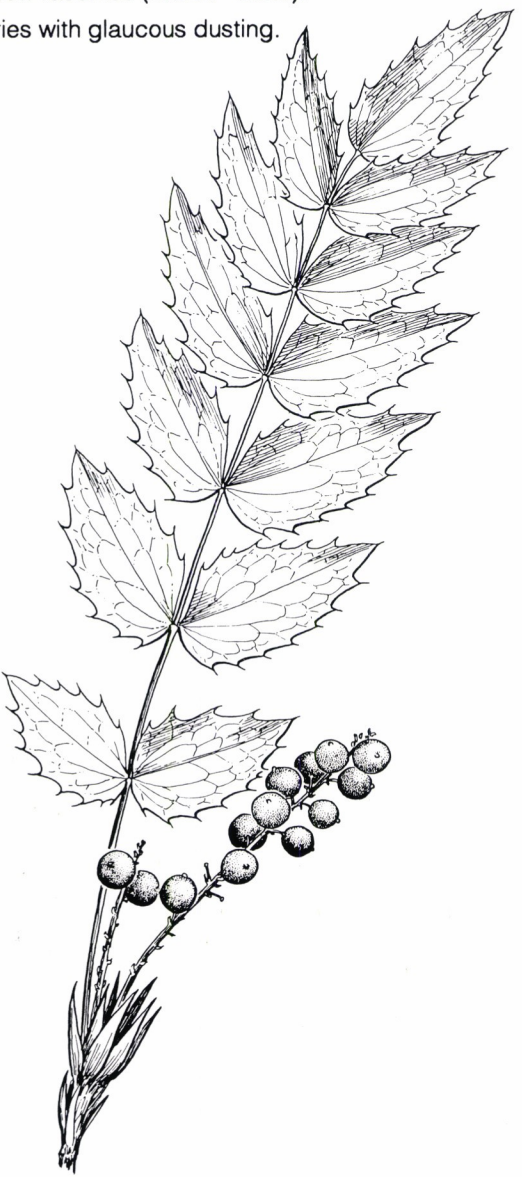
Habit: Low, rhizomatous shrub usually less than 24" high.

Stems: Rhizomatous; ascending to erect.

Leaves: Evergreen; tufted; pinnately compound with 9-19 leaflets (10-16" long); margins "holly-like" with coarse spiny teeth; palmately nerved; glossy.

Flowers: Golden yellow racemes (March - June).

Fruit: Dark blue berries with glaucous dusting.



Creeping Oregon-Grape

Berberis repens **BERE**

Family - Berberidaceae

Range: Eastern Washington and eastern Oregon in the Pacific Northwest.

Habitat: Drier, well-drained sites often on steep montane or canyon slopes.

Look Alikes: Tall Oregon-grape (***Berberis aquifolium***) has longer leaflets, 7 to 9 in number; which are glossy and lighter in color than other Oregon-grapes.

Indicator Value: Found over a wide range of plant associations (ABGR/CLUN, ABGR/LIBO2) to (PIPO/SYAL and PIPO/FEID). Best represented in the PSME series and in spiraea-dominated communities.

Miscellany: Native Americans used the berries for food; roots for yellow dye, and its alkaloid (berberine) as a cure for stomach and bowel disorders. Berries are good raw, cooked for jelly, or made into wine. Young leaves palatable to deer. The State flower of Oregon is ***B. aquifolium***.

C. Johnson

Creeping Oregon-Grape

Berberis repens **BERE**

Habit: Low, creeping shrub usually less than 12" high.

Stems: Rhizomatous, often forming dense patches.

Leaves: Evergreen, alternate, pinnately compound with 5 to 7 leaflets. Margins are "holly-like" with spinose teeth. Leaflets are less than twice as long as broad, dull green, and usually nonglossy above.

Flowers: Buttery yellow, bunched into racemes (March - June).

Fruit: Dark blue berries with a glaucous dusting.

Redstem Ceanothus

Ceanothus sanguineus **CESA**
Family - Rhamnaceae

Range: Widespread from the Cascades to the Rocky Mountains in the Pacific Northwest.

Habitat: Well-drained soils in openings as a result of fire.

Look Alikes: Snowbrush ceanothus (***Ceanothus velutinus***) has evergreen leaves which are very shiny. Red-osier dogwood (***Cornus stolonifera***) has opposite leaves.

Indicator Value: Commonly found in Douglas-fir series vegetation (especially as an early seral member of PSME/PHMA plant association).

Miscellany: A nitrogen-fixing plant; important browse for deer and elk; fire seral species - promoted by forest fires.

C. Johnson

Redstem Ceanothus

Ceanothus sanguineus **CESA**

Habit: Erect, loosely branched shrub (3-10 feet tall) tending to form thickets.

Stems: Smooth, purplish-red, alternately branched.

Leaves: Deciduous, alternate, dark green, and glabrous above, pale below; 1-4 inches long with serrated margins on a 1 inch petiole. Three main veins branch from leaf base.

Flowers: White, small, clustered in dense panicles (May - June).

Fruit: Small, hard, 3-celled capsule which explodes seed following fire scarification.

Snowbrush Ceanothus

Ceanothus velutinus **CEVE**
Family - Rhamnaceae

Range: Widespread in mountainous Pacific Northwest.

Habitat: Open, sunny slopes typically on fire-frequented, early seral sites. Commonly occurs on glacial till where fire has frequented.

Look Alikes: May be confused with redstem ceanothus (***Ceanothus sanguineus***) which has deciduous leaves and reddish stems.

Indicator Value: Commonly occurs in early seral vegetation beneath ponderosa pine, Douglas-fir, and western larch pertaining to grand fir series plant associations. Very aggressive following conflagration fires and hot clearcut-burns.

Miscellany: A nitrogen-fixing plant. Seeds require scarification in order to germinate. Flowers make a soapy lather when crushed in water and provide a fragrance and softness to the skin after washing. Leaves used by Native Americans for tobacco, tea, and red dye. Palatability is low.

C. Johnson

Snowbrush Ceanothus

Ceanothus velutinus **CEVE**

Habit: Very aromatic, erect shrub (2-10 feet tall).

Stems: Green, smooth bark, alternately branched.

Leaves: Evergreen, alternate, thick, very glossy or shiny dark green above, paler below. Three main veins branch from leaf base. Edges often curl downward.

Flowers: Small, white, in dense pyramidal shaped racemes (June - August).

Fruit: Small capsule containing 3 seeds explodes following intense heat.

Netleaf Hackberry

Celtis reticulata **CERE2**
Family - Ulmaceae

Range: Along Snake River in Oregon and Idaho and other river courses from east-central Washington and eastern Oregon to southern California, Utah, Nevada and Arizona. East from Idaho to Wyoming, Colorado, Oklahoma and Texas.

Habitat: Open slopes; rocky outcrops; toeslopes near streams in deep canyons; on dry, gravelly slopes.

Look Alikes: Rather distinctive. Possibly could be mistaken for introduced mulberry (***Morus alba***) in Snake River Canyon. Leaves of mulberry are not 3-veined; are symmetrical at base; and are not rough on upper surface.

Indicator Value: Type indicator of netleaf hackberry/bluebunch wheatgrass (CERE2/AGSP) plant association. Found on river terraces in the riparian community, and on seepages below rims.

Miscellany: Fruits used by songbirds (lazuli bunting, grosbeaks, magpies), skunks and deer. Trees provide hiding cover, shading for wild animals in open canyonlands; fruits provide emergency and important winter food for birds. Native Americans dried and ground fruit into flour.

C. Johnson

Netleaf Hackberry

Celtis reticulata **CERE2**

Habit: Shrubs to small trees (up to 30 ft. tall); deciduous; slow growing; longevity up to 200 years; strong taproot can reach available water at depths to 15 ft. Also has wide spreading fibrous roots.

Big Tree: National Champion - Catron County, N. Mexico (Ht. - 69', Circum. - 180", Spread - 75', Points - 268).

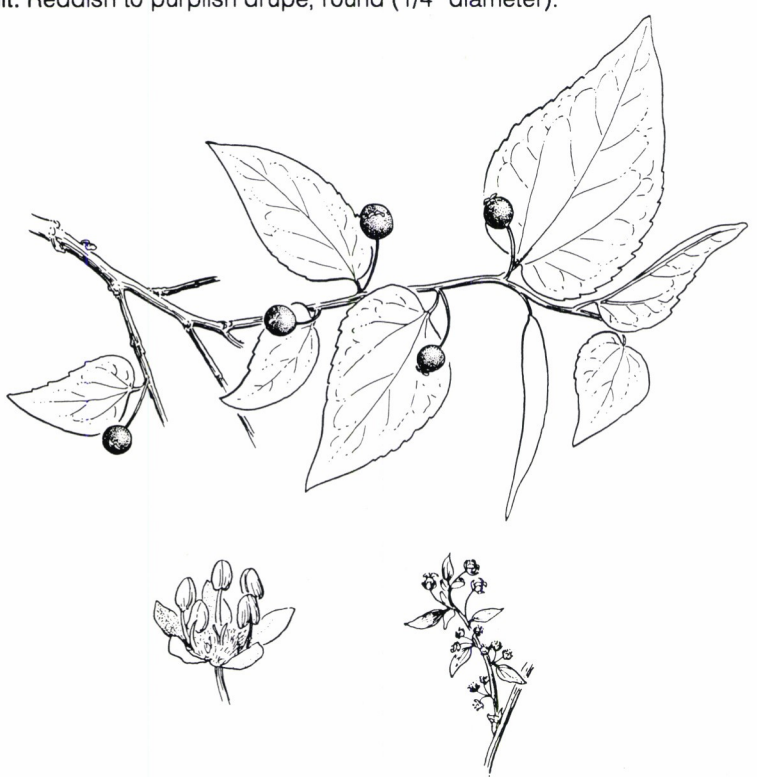
Oregon Champion - Idaho County (Ht. - 30', Circum. - 83", Spread - 30', Points - 121).

Stems: Branching is crooked to zigzag; young stems pubescent; older bark grayish-brown, ridged, furrowed; no terminal buds.

Leaves: Alternate; simple; obliquely-ovate with acuminate tip (1-3" long); cordate at base; serrate; dark green and rough like sandpaper above; pale gray-green below; strongly 3-veined beneath and reticulate (gives names of "netleaf" to the plant). Dry leaves persist on tree from previous season. Galls formed by insects commonly form on leaves.

Flowers: Mostly staminate; clustered on short shoots in leaf axils; stamens 5 and opposite the 5 petals (April - May).

Fruit: Reddish to purplish drupe; round (1/4" diameter).



Curlleaf Mountain-Mahogany

Cercocarpus ledifolius **CELE**
Family - Rosaceae

Range: Southern and eastern Oregon extending through southeastern Washington to the Rockies.

Habitat: Warm, dry rocky ridges and rim outcroppings.

Look Alikes: Quite distinctive.

Indicator Value: Defines important forest edge where sites are too droughty and severe for suitable silviculture. Soils are too shallow or too rocky. Ponderosa pine and juniper may be associated.

Miscellany: Important deer winter range species. A good place to find the big buck is in thickets of curlleaf mountain-mahogany. Wood used for fuel and smoking of meats by Native Americans. They also used leaves for a laxative, inner bark for pulmonary problems, and wood for arrow shafts and digging implements due to its hardness and strength. A red dye was made from bark and roots.

C. Johnson

Curlleaf Mountain-Mahogany

Cercocarpus ledifolius **CELE**

Habit: Evergreen shrub generally 15 feet tall and occasionally 40 feet tall and treelike.

Big Tree: National Champion - Great Basin Nat'l Park, Nevada (Ht. - 26', Circum. - 156", Spread - 67', Points - 199).

Oregon Champion - Fremont NF (Ht. - 25', Circum. - 8", Spread - 35', Points - 90).

Idaho Champion - Caribou County (Ht. - 21', Circum. - 48", Spread - 18', Points - 73).

Wallowa-Whitman NF Champion - La Grande RD (Ht. - 20', Circum. - 38", Spread - Inc., Points - Inc.).

Umatilla NF Champion - Pomeroy RD (Ht. - 35', Circum. - 38", Spread - 16', Points - 77).

Stems and Bark: Reddish-brown becoming grayish-brown in age. Bark is grayish-brown with rough, deeply furrowed bark and plate-like scales.

Leaves: Evergreen, alternate, 1/2-1 inch long; dark green on upper surface with pale, pubescent underside. Thick and leathery with blade edges curling under.

Flowers: Greenish-white, inconspicuous, in axillary clusters (April - June).

Fruit: Narrow achene with distinctive curled, long, twisted plume.

Little Pipsissewa

Chimaphila menziesii **CHME**
Family - Ericaceae

Range: Widespread in the Pacific Northwest.

Habitat: A cool, moist, mid to high elevation shade-tolerant plant.

Look Alikes: Prince's pine (***Chimaphila umbellata***) usually contains more than 3 flowers and has shiny green oblanceolate leaves.

Indicator Value: Cool, moist, shaded communities in ABGR/ACGL, ABGR/LIBO2, ABGR/CLUN, and ABGR/GYDR.

Miscellany: Roots and leaves when boiled and cooled provide a refreshing drink.

K. Urban

Little Pipsissewa

Chimaphila menziesii **CHME**

Habit: Small, erect rhizomatous sub-shrub usually less than 6" tall.

Stems and Bark: Unbranched, glabrous with woodyish base; may be reddish.

Leaves: Evergreen, simple, alternate 1-2 inches long, dull green to bluish-green; serrated margins; widest below the middle.

Flowers: Waxy, white to pinkish-white, solitary to 3 in number (June - August).

Fruit: Rounded 5-celled capsule.

Prince's Pine, Western Pipsissewa

Chimaphila umbellata **CHUM**
Family - Ericaceae

Range: Widespread throughout mountains of Pacific Northwest.

Habitat: Mid to high elevation cool, moist sites that may be shady or exposed.

Look Alikes: Little pipsissewa (***Chimaphila menziesii***) usually has less than 3 flowers with dull green to blue-green elliptic leaves.

Indicator Value: Cool, moist communities in ABGR, ABLA2, and TSME plant associations.

Miscellany: Roots and leaves boiled for refreshing drink when chilled; used as an ingredient for root beer. Used by pharmaceutical companies for its astringent properties. Unpalatable.

C. Johnson

Prince's Pine, Western Pipsissewa

Chimaphila umbellata **CHUM**

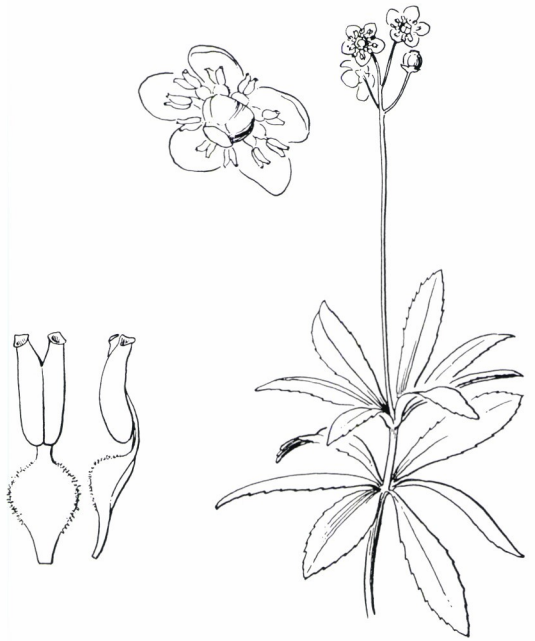
Habit: Small, erect rhizomatous sub-shrub usually 4 to 12" tall.

Stems and Bark: Unbranched, glabrous, woodyish base; yellowish-green.

Leaves: Evergreen, simple, alternate, 2 to 3" long, bright green, oblanceolate, whorled, serrated margins.

Flowers: Waxy, whitish-pink to pink, 3 to 15 in clustered racemes (June - August).

Fruit: Rounded 5-celled capsules.



Gray Rabbitbrush

Chrysothamnus nauseosus **CHNA**
Family - Compositae

Range: Southern British Columbia and Saskatchewan southward on east side of Cascades to California, Texas and New Mexico.

Habitat: Dry, open slopes to flat valley and foothill locations - extending into forest at lower elevations. Occurs on a variety of soils - sandy, gravelly to clay loams.

Look Alikes: Due to its coloration and habitat, gray rabbitbrush can be mistaken for sagebrushes and mugworts. Gray rabbitbrush leaves are not lobed and do not have a pungent sage odor when crushed. Green rabbitbrush (***Chrysothamnus viscidiflorus***) has glabrous stems and wider leaves which are often twisted.

Indicator Value: Moist conditions in sandy soils on sagebrush sites. An increaser and invader of bunchgrass, bitterbrush and sagebrush plant associations. Also found extending into ponderosa pine plant associations where overgrazing and overbrowsing has degraded the community.

Miscellany: Low palatability. Aggressive and vigorous on overgrazed sites. Prominent on fill slopes of roads in sage-grass steppe. Twigs browsed by antelope and mule deer; foliage used by rabbits. Flowers grazed by wildlife and livestock in fall. A potential source for rubber.

C. Johnson

Gray Rabbitbrush

Chrysothamnus nauseosus **CHNA**

Habit: Low to mid-sized shrubs (up to 3 ft.) with open, round to flat-topped form. Tap rooted with many spreading fibrous roots.

Stems: Erect; covered with flexible, persistent hairs growing close together to form a felt-like cover to the stem providing a gray appearance that gives the plant its common name.

Leaves: Linear; entire margins; 1-2 inches long; covered with woolly hairs; not twisted.

Flowers: Heads in rounded, elongate clusters; involucral bracts layered (shingle-like); yellow corollas. Especially showy in late summer and Indian summer (August - October).

Fruit: Achene with many bristles.

Spiny Greenbush

Glossopetalon nevadense **GLNE**
Family - Celastraceae

Range: Snake River canyon and tributaries of west central Idaho and adjacent Oregon; southward to California, Arizona, Nevada and Utah.

Habitat: Rocky outcrops and rims in canyons.

Look Alikes: Could possibly be confused for mountain-mahogany (*Cercocarpus ledifolius*) but spiny branch tips are found on greenbush.

Indicator Value: Steep rocky slopes and canyon walls on hot, dry exposures of deep canyonlands. Type indicator of the spiny greenbush/bluebunch wheatgrass (GLNE/AGSP) plant association.

Miscellany: Principal use is by deer browsing foliage.

C. Johnson

Spiny Greenbush

Glossopetalon nevadense **GLNE**

Habit: Erect mid-sized shrub (3-6 ft. tall); open branching; glabrous.

Stems: Spiny-tipped; grooved branches; glabrous.

Leaves: Deciduous; oblong to oblanceolate leaves up to 1/2" long; gray-green; entire margins.

Flowers: Single in leaf axils; white; stamens opposite to and equaling the 5 sepals in male flowers; stamen remnants often twin the number of sepals in female flowers (April - June).

Fruit: 1-seeded leathery follicle.

Ocean Spray

Holodiscus discolor **HODI**
Family - Rosaceae

Range: Widespread throughout the Pacific Northwest

Habitat: Open rocky or gravelly colluvial slopes and beneath warm, dry tree species (ponderosa pine, Douglas-fir) in open forested stands.

Look Alikes: Possibly confused with currants, gooseberries (***Ribes*** **spp.**) or ninebark (***Physocarpus malbacus***) when not in flower. Leaf margins are distinctive. Look for old dried inflorescences from previous year. Bark does not shred.

Indicator Value: Often associated with ninebark. Helps define PSME/PHMA and PSME/ACGL-PHMA communities in Wallowas and Northern Blue Mountains. Defines the PSME/HODI plant association in the Northern Blues.

Miscellany: Resprouts basally following fire and increases with disturbance. Fruits were consumed by Native Americans. Other common name is Indian arrowwood - due to use of the hardwood of branches for arrow shafts. May be heavily browsed on winter ranges.

C. Johnson

Ocean Spray

Holodiscus discolor **HODI**

Habit: An erect, multi-branched mid-sized shrub (3-9 feet tall) with vase-like form.

Stems and Bark: Grayish-red color; young stems ridged, older bark shreds.

Leaves: Alternate, deciduous, 1-3 inches long with triangular shape and truncated base; margins are shallowly lobed with coarse teeth; pale green above and white-hairy below.

Flowers: Small, creamy to white; borne in dense, large pyramidal panicles that often droop in a "spray;" old dried inflorescences usually overwinter (July - August).

Fruit: Small 1-seeded achenes.

Twinflower

Linnaea borealis **LIBO2**
Family - Caprifoliaceae

Range: Circumboreal; prevalent in forests of the Pacific Northwest.

Habitat: A cool, moist forested plant preferring ashy soils. Occurs in partial shade, but prefers dark, densely canopied forest overstory cover.

Look Alikes: Leaves could be mistaken for wintergreens (***Pyrola* spp.**) or bearberries (***Arctostaphylos* spp.**) which have alternate leaves. Twinflower has opposite leaves.

Indicator Value: Important indicator of cool, moist, dark grand fir and subalpine fir plant associations (ABLA2/CLUN, ABLA2/LIBO2, ABGR/CLUN, ABGR/LIBO2, ABGR/TABR/CLUN).

Miscellany: A good horticultural ground cover. Unpalatable. Often increases with light disturbance following logging. The generic name is in honor of Carolus Linnaeus of Sweden - the father of the binomial plant classification system. This was his favorite flower.

C. Johnson

Twinflower

Linnaea borealis **LIBO2**

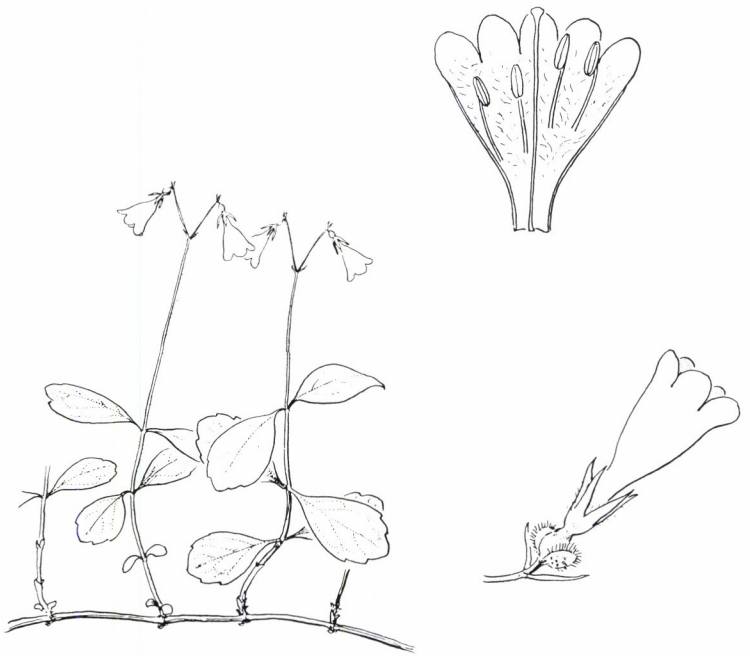
Habit: Trailing sub shrub.

Stems and Bark: Slender, woody stems less than 5" tall.

Leaves: Opposite on short petioles, evergreen, leathery, elliptic, 1/2-inch lustrous green; shallow teeth near leaf apex.

Flowers: Pinkish to white, paired, nodding bell-shaped on slender flower stalks (June - September).

Fruit: Small, 1-seeded capsules.



Bearberry Honeysuckle

Lonicera involucrata **LOIN**
Family - Caprifoliaceae

Range: Throughout forests of Pacific Northwest.

Habitat: Cool, moist to cold, wet sites at higher elevations.

Look Alikes: Utah honeysuckle (***Lonicera utahensis***) has red, twin berries.

Indicator Value: Indicates cold, wet or cool, moist spruce and subalpine fir sites.

Miscellany: Berries may be eaten raw or dried; browsed by elk and deer; berries eaten by grouse and bear.

C. Johnson

Bearberry Honeysuckle

Lonicera involucrata **LOIN**

Habit: Erect mid-tall shrub (up to 12 feet); thicket forming.

Stems and Bark: Yellowish or grayish-brown; shredding older bark.

Leaves: Opposite, deciduous, up to 5 inches long, elliptical, dark green above, paler below; entire margins with acute apex.

Flowers: Yellow to reddish-yellow in pairs; glandular-pubescent; subtended by large bracts that become red at fruiting time (June - August).

Fruit: Paired purple to black berries 1/4 inches in diameter.

Utah Honeysuckle

Lonicera utahensis **LOUT2**
Family - Caprifoliaceae

Range: Throughout Pacific Northwest except for Oregon Coast Range.

Habitat: Moist, cool sites in grand fir and subalpine fir zones. More widespread than bearberry honeysuckle (***Lonicera involucrata***), but not very abundant.

Look Alikes: Very commonly mistaken for snowberries (***Symphoricarpos*** spp.), but habitats do not usually overlap. Utah honeysuckle (*L. involucrata*) has broader, longer, darker leaves with red fruits.

Indicator Value: Occurs with Rocky Mountain maple (***Acer glabrum***) in ABGR/ACGL and PSME/ACGL-PHMA plant associations. Defines true fir potential sites.

Miscellany: Leaves used by Native Americans for colds and sore throats; berries are edible; used by deer and elk - low in palatability.

C. Johnson

Utah Honeysuckle

Lonicera utahensis **LOUT2**

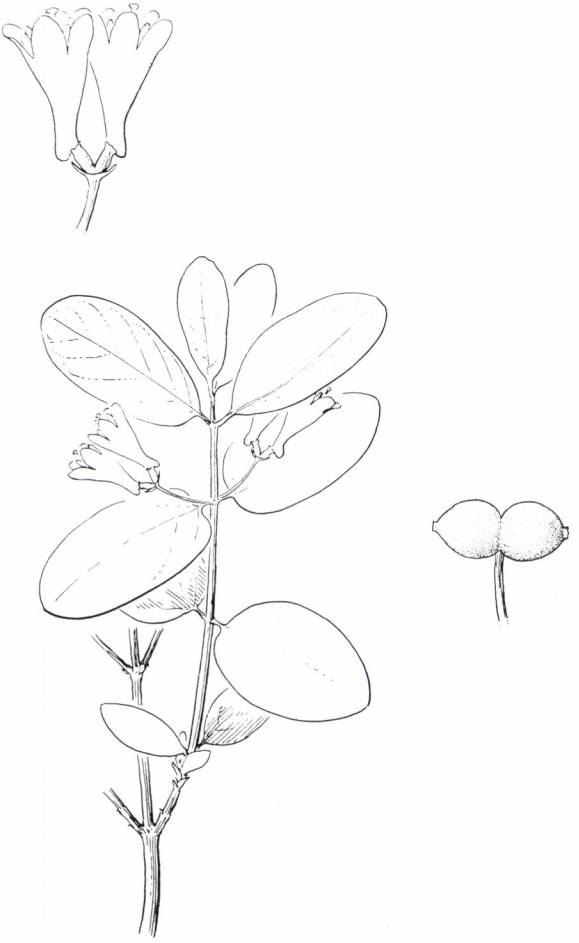
Habit: Low to mid-sized shrub with few erect branches (3-5 feet tall).

Stems and Bark: Dull gray with solid white pith.

Leaves: Opposite, deciduous, elliptic to ovate, green to dark green, 1-2 inches long.

Flowers: Light yellow, paired, tubular corolla, 1 inch long (May - July).

Fruit: Paired, shiny red united berries (1/4 inch).



Fool's Huckleberry

Menziesia ferruginea **MEFE**
Family - Ericaceae

Range: Widespread in Pacific Northwest; occasional in Seven Devils and adjacent Oregon.

Habitat: Defines cold, wet sites on gentle slopes and cornice sites on steep north aspects at high elevation locations.

Look Alikes: Cascades rhododendron (***Rhododendron albiflorum***) has white azalea-like flowers; Labrador-tea (***Ledum glandulosum***) has evergreen leaves with rolled margins; and big huckleberry (***Vaccinium membranaceum***) has alternate leaves without a whorled appearance.

Indicator Value: Defines ABLA2/MEFE plant association.

Miscellany: Low in palatability; poisonous to livestock if used in quantity.

C. Johnson

Fool's Huckleberry

Menziesia ferruginea **MEFE**

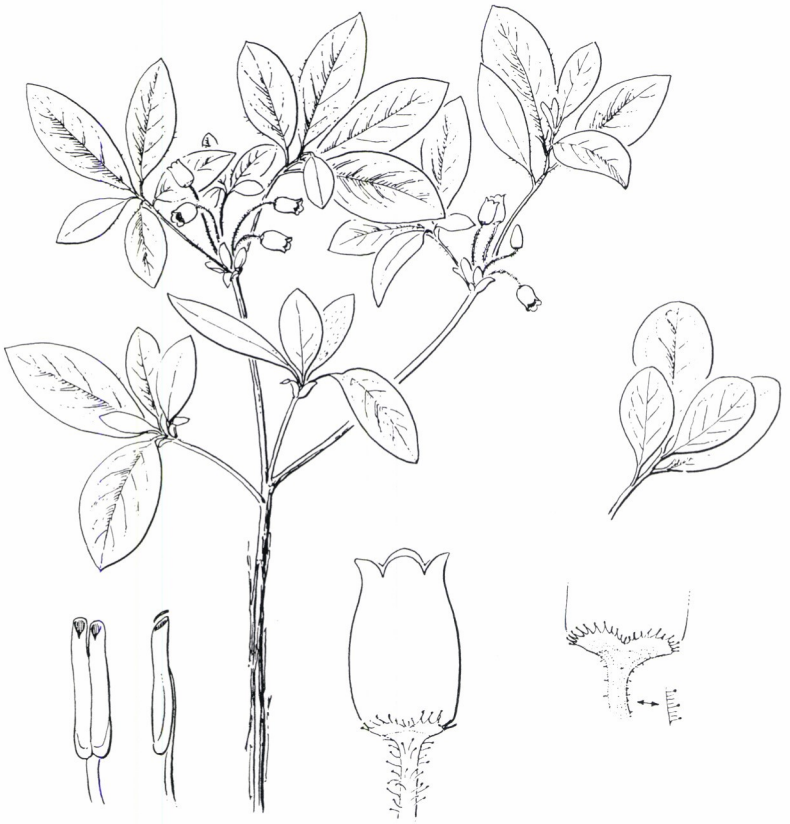
Habit: Deciduous, straggling shrub, up to 6 feet tall; usually reclined downslope on steep cornice sites forming dense thickets.

Stems and Bark: Yellow-tan, pubescent new twigs; gray-reddish brown older stems and shredding bark.

Leaves: Alternate (appearing whorled); deciduous ovate to elliptic (2 inches long); thin; dull light green to glaucous green; brownish, glandular hairs with finely serrated margins. Mid vein protrudes from leaf tip.

Flowers: White to pinkish white; urn-shaped; borne in clusters (June - July).

Fruit: Many-seeded ovoid capsule.



Pachistima, Oregon Boxwood

Pachistima myrsinites **PAMY**
Family - Celastraceae

Range: Throughout the Pacific Northwest.

Habitat: Usually in open or shaded, well-drained soils. Also occurs on ash soils at higher montane elevations.

Look Alikes: May possibly be confused with bearberries (***Arctostaphylos*** **spp.**) which have alternate, entire leaves.

Indicator Value: Early seral grand fir communities (especially with grouse huckleberry, big huckleberry, twinflower, queen's cup).

Miscellany: Excellent for horticultural use; may be shaped into hedges. Used for backdrop in floral arrangements. Deer and elk relish the plant. The specific name ***myrsinites*** means "myrtle- like." Another common name is myrtle boxwood.

C. Williams

Pachistima, Oregon Boxwood

Pachistima myrsinites **PAMY**

Habit: Low growing (up to 2 feet tall) evergreen shrub

Stems and Bark: Reddish-brown and ridged to 4 angles.

Leaves: Opposite, evergreen, dark green, glossy, oblanceolate, serrated, thick and leathery.

Flowers: Maroon, small, borne in axillary clusters (April - June).

Fruit: Small, white aril covering dark brown seeds.

Squawapple

Peraphyllum ramosissimum **PERA3**
Family - Rosaceae

Range: Grant and Baker Counties in eastern Oregon southward to northeast California; eastward through southern Idaho to Utah and Colorado.

Habitat: Sagebrush, juniper and ponderosa pine woodlands on edge of the Great Basin in our area. Occurs in a transitional community - a broad ecotone - between ponderosa pine and juniper woodlands and sagebrush-dominated communities of the desert.

Look Alikes: Distinctive with the fascicled leaves and shape of the shrub. Possibly could be confused with mountain-mahogany (***Celtis reticulata***) which has similar leaves but they are not tufted by fascicles. Mountain-mahogany leaves curl under on the margins.

Indicator Value: Type indicator for squawapple - mountain snowberry (PERA3-SYOR) and ponderosa pine/squawapple (PIPO/PERA3) plant associations.

Miscellany: An attractive shrub which could be employed for biodiversity-enhancing activities in forest-steppe transitional areas. Provides browse to deer on winter ranges. Can sustain heavy browse pressure.

C. Johnson

Squawapple

Peraphyllum ramosissimum **PERA3**

Habit: Rigidly branched, medium to tall shrub (up to 8 ft. tall) with characteristic rounded crown in a "half dome."

Stems: Dark gray; glabrous.

Leaves: Fascicled (bound like a pine's needles); narrow, entire, oblanceolate with acute tip; leathery; deciduous; dark green.

Flowers: 1-3 at branch ends; 5 petals, pinkish to rose; 5 reflexed calyx lobes; stamens approx. 15 at top of corolla tube; ovary inferior; 2 styles (May - June).

Fruit: Pome (yellowish to reddish) - 3/8" diameter (like a miniature apple).

Syringa, Mock-Orange

Philadelphus lewisii **PHLE2**
Family - Hydrangeaceae

Range: British Columbia to northern California; Washington, Oregon, north and central Idaho to western Montana.

Habitat: Rocky talus, rims, along streams and dry ravines; lower canyon slopes to rock slides in the mountains.

Look Alikes: Redstem ceanothus (***Ceanothus sanguineus***) leaves are 3-veined from base with alternate branches and leaves. Red-osier dogwood (***Cornus stolonifera***) leaves are opposite and entire but not 3-veined from base; lateral veins are sunken. Cascara (***Rhamnus purshiana***) leaves are alternate with prominent lateral veins.

Indicator Value: Subsurface moisture on talus below rims and dry ravines (especially in canyonland ecosystem).

Miscellany: State flower of Idaho. Used widely as ornamental. The species named for Capt. Meriwether Lewis who discovered it in 1804. The generic name honors the Egyptian King "Philadelphus." Browsed by deer and elk. Seeds eaten by quail and chukars. Sprouts readily after fire. The Native Americans used the straight branches to make arrow shafts, pipestems and combs.

C. Johnson

Syringa, Mock-Orange

Philadelphus lewisii **PHLE2**

Habit: Medium to tall shrub (3-10 ft.) with rounded form.

Stems: Red-brown and smooth; opposite branching; develops "cross-track" bark on second year growth.

Leaves: Opposite; deciduous; ovate-lanceolate, generally entire (but may be serrated on older branches); 1-3 inches long; 3 prominent veins from leaf base; light green above - pale green below.

Flowers: Many, fragrant (like citrus flowers); 3-11 in terminal racemes; 4 showy white petals with many yellow stamens; about 1 inch wide (May - July).

Fruit: Capsule (ovoid - elliptic); 4-celled; 1/4 inch long.

Pink Mountain-Heath

Phyllodoce empetriformis **PHEM**
Family - Ericaceae

Range: High mountains of the Pacific Northwest.

Habitat: Alpine and subalpine sites on well-drained soils.

Look Alikes: Cassiope (***Cassiope mertensiana***) has scale leaves and white flowers. Yellow mountain-heath (***Phyllodoce glanduliflora***) has yellow-white flowers.

Indicator Value: Indicates cold environments in subalpine fir and white-bark pine zones where regeneration and revegetation will be difficult at best.

Miscellany: Unpalatable plant. Attractive in its natural setting.

C. Johnson

Pink Mountain-Heath

Phyllodoce empetriformis **PHEM**

Habit: Matted evergreen shrub (4-20 inches tall).

Stems and Bark: Fine, short, hairy in youth, becoming glabrous.

Leaves: Alternate, evergreen, linear needle-like, 1/2 inch long, grooved beneath and rolled under (to help reduce transpiration).

Flowers: Deep pinkish-rose, bell-shaped, and clustered at stem tips (June - August).

Fruit: Ovoid 5-valved capsule.

Mallow Ninebark

Physocarpus malvaceus **PHMA**
Family - Rosaceae

Range: Central and eastern Washington and Oregon to northern and central Rockies.

Habitat: Canyon slopes and bottoms beneath ponderosa pine and Douglas-fir as well as on nonforested shrubland sites.

Look Alikes: Ocean spray (***Holodiscus discolor***) has leaves that are not palmately lobed like a maple. Sticky currant (***Ribes viscosissimum***) has leaves which are glandular and sticky to the touch.

Indicator Value: Defines PSME/ACGL-PHMA and PSME/PHMA plant associations.

Miscellany: Low palatability, browsed sporadically; severe regeneration difficulty; vigorous and aggressive following fire.

C. Johnson

Mallow Ninebark

Physocarpus malvaceus **PHMA**

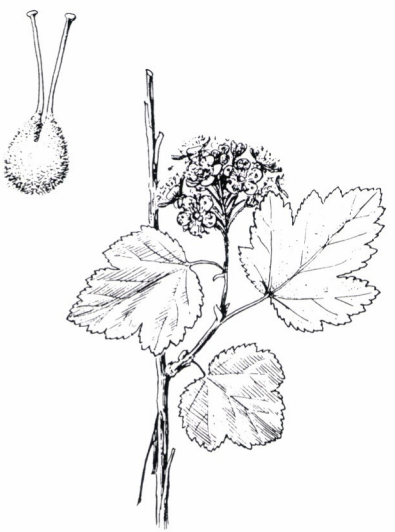
Habit: Erect, loosely branched mid to tall shrub (up to 6 feet tall).

Stems and Bark: Reddish to grayish-brown with loose, shredding bark.

Leaves: Alternate, deciduous, maple-like with 3 palmate lobes; 1 to 2 1/2 inches; margins doubly serrate; stellate hairs on underside; petiole - 3/4 inch long.

Flowers: Small, white, borne in terminal corymbs (May - July).

Fruit: Paired, many seeded hairy follicles.



Chokecherry

***Prunus virginiana* (var. *melanocarpa*)** **PRVIM**
Family - Rosaceae

Range: Across Canada and the northern United States. Very widespread in the Pacific Northwest.

Habitat: From seepy outcrops in the cold desert sagebrush-grasslands to the lower elevation (up to 4,000 ft.) forests. Occupies cool, moist foothills, mountains and canyon habitats. Usually scattered, but can form thickets on canyon rim seepage sites.

Look Alikes: Readily differentiated from bittercherry (***Prunus emarginata***) which has glands on the leaf base whereas chokecherry has glands on the petiole at the base of leaf. Serviceberry (***Amelanchier alnifolia***) leaves have no glands and leaf veins which are strongly paralleling.

Indicator Value: Indicates early seral stages of warm, moist Douglas-fir (especially PSME/PHMA, PSME/SYAL, PSME/SYOR) and warm, moist ponderosa pine plant associations (PIPO/SYAL, PIPO/SYOR).

Miscellany: Fruits have astringent after-taste; used for jellies, syrups, wine. Used fresh or dried and mixed in a pemmican for winter by the Nez Perce. They also used bark for tea to relieve diarrhea and stomach ailments. Harvested in Aug. - Sept. after first freeze. Cyanide levels high in leaves, pits and succulent shoots. Cyanide levels lower with drying and cooking. Pulp is safe. Provides key mule deer browse; fruits used by grouse, magpies, rabbits, bears.

C. Johnson

Chokecherry

***Prunus virginiana* (var. *melanocarpa*)** **PRVIM**

Habit: Tall shrub (3-15 ft.).

Big Tree: National Champion - Kootenai County, Idaho (Ht. - 73', Circum. - 54", Spread - 18', Points - 132).

Oregon Champion: Benton County (Ht. - 76', Circum. - 5", Spread - 34', Points - 114).

Stems: Purplish-gray bark; reddish-brown twigs; lenticels not evident.

Leaves: Deciduous; alternate; oblong-ovate to obovate; 2-4 inches long; finely serrate; dark green and lustrous above; pale green below; leaf apex acute and base rounded; petiole 1-inch long with 2 prominent glands below the leaf base.

Flowers: White, elongated raceme up to 6 inches long and drooping (May - July).

Fruit: Drupe (red to purple to black); 3/8 inch in diameter.

Bitterbrush

Purshia tridentata **PUTR**
Family - Rosaceae

Range: East of Cascades in Washington and Oregon and northern California and eastward to western Montana, Wyoming, and Colorado.

Habitat: Sandy, gravelly and rocky soils in cold desert shrub- lands and beneath ponderosa pine at the forested fringe on warm dry sites.

Look Alikes: Most readily confused with sagebrushes (***Artemisia*** **spp.**). However, sagebrush leaves are silvery, hairy, and odoriferous.

Indicator Value: Steppe: PUTR/AGSP; PUTR/FEID-AGSP; Forest: PIPO/PUTR/CARO; PIPO/PUTR/FEID-AGSP; PIPO/PUTR/CAGE.

Miscellany: Extremely important winter range browse species for deer, antelope, and elk. Highly palatable plant. Regeneration problems; sensitive to fire; needs moist soils or precipitation following fire to resprout. Used by Native Americans for firewood. Seeds are "bitter." Rodents cache or eat seeds in great quantities. Capable of sprouting from branch contact with ground. The specific name **"tridentata"** refers to the three-lobed leaf.

C. Johnson

Bitterbrush

Purshia tridentata **PUTR**

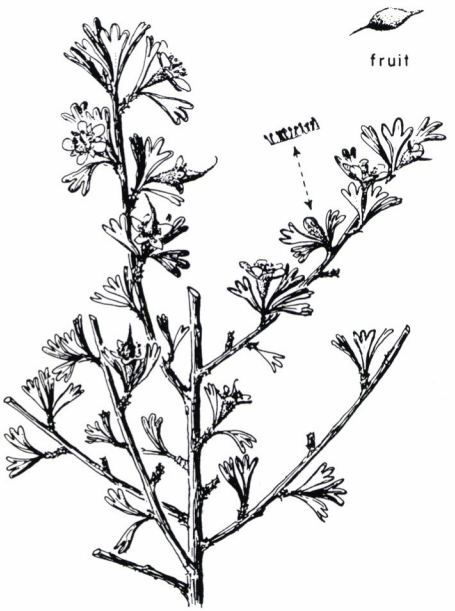
Habit: Erect, stiff and abundantly branched mid shrub up to 8 feet tall (usually less than 5 feet tall). Free branching form is usually replaced by globose, compact form from severe hedging by animals.

Stems and Branches: Reddish-brown becoming gray-reddish brown; spur shoots common (bitter to taste).

Leaves: Alternate, deciduous; wedge-shaped (3/4 inch long); clustered on spur shoots; green to gray-green above, white to gray pubescent below; margins rolled under; 3-lobed apex.

Flower: Pale yellow, borne singly (April - June).

Fruit: Tear-shaped achene with tapered beak (bitter to the taste).



Smooth Sumac

Rhus glabra **RHGL**
Family - Anacardiaceae

Range: Widely distributed east of the Cascades throughout Washington and Oregon; southward through Nevada to Mexico; eastward to New Hampshire and Georgia.

Habitat: Dry, well drained sites at toe slope positions, along ravines and stream channels in the canyonlands.

Look Alikes: Distinctive but may be confused with introduced black walnut (***Juglans* spp.**) due to large pinnately compound leaves. But walnuts have leaflets with hairy undersides, chambered pith, and fruits which are 2" in diameter.

Indicator Values: Type indicator for smooth sumac/bluebunch wheatgrass (RHGL/AGSP) plant association. Capable of persisting on dry, colluvial talus. Invades bunchgrass sites in absence of periodic fire.

Miscellany: Fruits persist long into the winter and provide sustaining food to chipmunks, birds (magpies, quail, flickers, wrens, thrushes); rabbits use bark and deer browse foliage and twigs. Berries are eaten raw or soaked in water for a lemon-like drink. Native Americans used berries for beverages, sprouts for salad greens, and smoked the leaves as a "tobacco." Nez Perce used moistened leaves on rashes, as a tea for colds, and as a laxative when eaten in large quantities. Used widely as an ornamental due to its colorful bright red leaves in the fall.

C. Johnson

Smooth Sumac

Rhus glabra **RHGL**

Habit: Thicket-forming shrub up to 10 ft. tall; extensive system of main roots probe depths to 8 feet while smaller lateral roots and rhizomes permit rapid spread and efficient use of available soil moisture.

Big Tree: National Co-Champion - Divide Creek, Idaho (Ht. - 28', Circum. - 28", Spread - 16', Points - 60).

Stems: Pubescent and reddish-brown on young twigs; grabrous and grayish-brown on older twigs; stout.

Leaves: Deciduous leaves 8-14" long, pinnately compound with 7-29 sessile, lanceolate leaflets; serrated; leaflets 2-5 inches long; dark green above; pale green below; exude milky sap when crushed.

Flower: Dense, elongated panicles of small, white flowers (April - May).

Fruit: Berrylike drupe; bright red; 3/16" in diameter; hairy.

Squaw Currant, Wax Currant

Ribes cereum **RICE**

Family - Grossulariaceae

Range: East slopes of Cascades and eastward to Rocky Mountains.

Habitat: Forest fringe or "edge" on warm, dry sites.

Look Alikes: Due to leaf size and shape it is fairly recognizable.

Indicator Value: A good indicator of nonsuitable timberland; defines the warm, dry extreme of the Blue-Wallowa Mountain forests; regeneration difficult.

Miscellany: Berries are edible but best used in jellies. Perhaps our most attractive currant - especially with fruits. The specific name **"cereum"** refers to the waxy leaf surface. Low palatability.

C. Johnson

Squaw Currant, Wax Currant

Ribes cereum **RICE**

Habit: Stiff, multi-branched mid-size shrub (up to 5 feet tall).

Stems and Bark: Unarmed; grey to reddish brown.

Leaves: Alternate, deciduous, very small (less than 1 1/4 inches in diameter), waxy upper surface; double serrate; indistinctly 3 - 5 lobed.

Flowers: Greenish-white, tubular; glandular; borne in drooping clusters of 3-5 (April - June).

Fruit: Bright red or orange berries.

Swamp Gooseberry

Ribes lacustre **RILA**
Family - Grossulariaceae

Range: Common throughout the west.

Habitat: Cool, moist to wet forests and openings in the forest.

Look Alikes: Could be confused with other gooseberries (***Ribes* spp.**) that are armed but the glossy, deeply-incised maple-like leaves are fairly diagnostic.

Indicator Value: Indicates true fir series plant associations (especi lly common with queen's cup, twinflower, and big huckleberry).

Miscellany: The principal *Ribes* eradicated as host for white pine blister rust; unpalatable; fruits used for jellies or jams. Our most common gooseberry.

C. Williams

Swamp Gooseberry

Ribes lacustre **RILA**

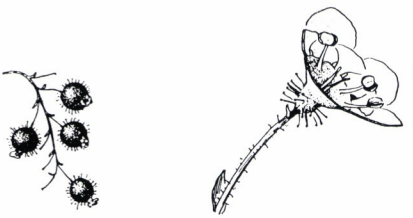
Habit: Erect, loosely branched mid-size shrub (up to 6 feet tall).

Stems and Bark: Armed with spines at nodes and prickles in between; smooth reddish-brown.

Leaves: Alternately deciduous, maple-like (5-lobed) - up to 2 inches wide; deeply incised and serrate margin; glossy upper surface, velvety underside.

Flowers: Yellowish-green to pinkish white; saucer-shaped calyx; drooping racemes of 7-15 (April - July).

Fruit: Purple-black berry with glandular hairs, edible.



Sticky Currant

Ribes viscosissimum **RIVI**
Family - Grossulariaceae

Range: East side of Cascades to the Rocky Mountains.

Habitat: Moist, warm and moist, cool sites in grand and subalpine fir plant communities.

Look Alikes: Ninebark (***Physocarpus malvaceus***) has nonglandular leaves that are finer toothed. Other unarmed currants (***Ribes* spp.**) have leaves that are nonglandular and shaped differently.

Indicator Values: Increases following tree overstory removal; especially in clearcuttings where soil is scarified. Pioneers after burns at higher elevations.

Miscellany: Alternate host for white pine blister rust. Unpalatable to animals; berries are not edible.

C. Williams

Sticky Currant

Ribes viscosissimum **RIVI**

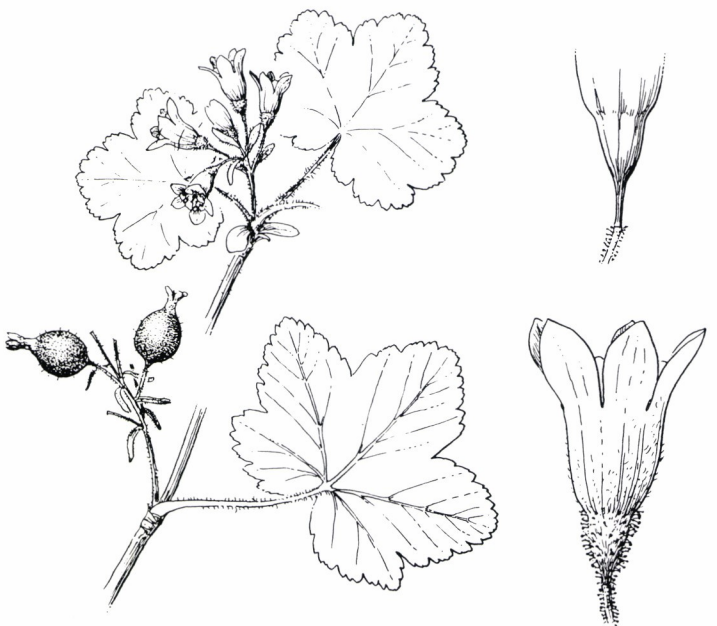
Habit: Erect to spreading; rather straggly; mid-size shrub (up to 5 feet tall).

Stems and Bark: Unarmed; hairy and glandular at youth - aging reddish-brown and glaucous; bark shreds.

Leaves: Alternate, deciduous; maple-like; 3 to 5 lobed; 3 inches wide; coarsely toothed; sticky soft hairiness to both sides of leaves.

Flowers: Bell-shaped; greenish-white; glandular; borne in a 3 to 8 flowered raceme (May - June).

Fruit: Black, glandular hairy berries.



Baldhip Rose

Rosa gymnocarpa **ROGY**
Family - Rosaceae

Range: Widespread in Pacific Northwest; absent from much of Idaho.

Habitat: Cool, moist sites in grand fir series plant associations (especially with LIBO2 and CLUN); also found on moist microsites in Douglas-fir communities.

Look Alikes: This is the only rose with prickles and no spines.

Indicator Value: Common in the cool, moist grand fir series plant associations and the moist Douglas-fir plant associations.

Miscellany: The fruits (hips) are good for use in teas; important source of Vitamin C; petals of flowers are pleasant to taste - use in salads; low in palatability. Sepals of the flower fall as ovary matures and leave a "bald" hip in fruit.

C. Johnson

Baldhip Rose

Rosa gymnocarpa **ROGY**

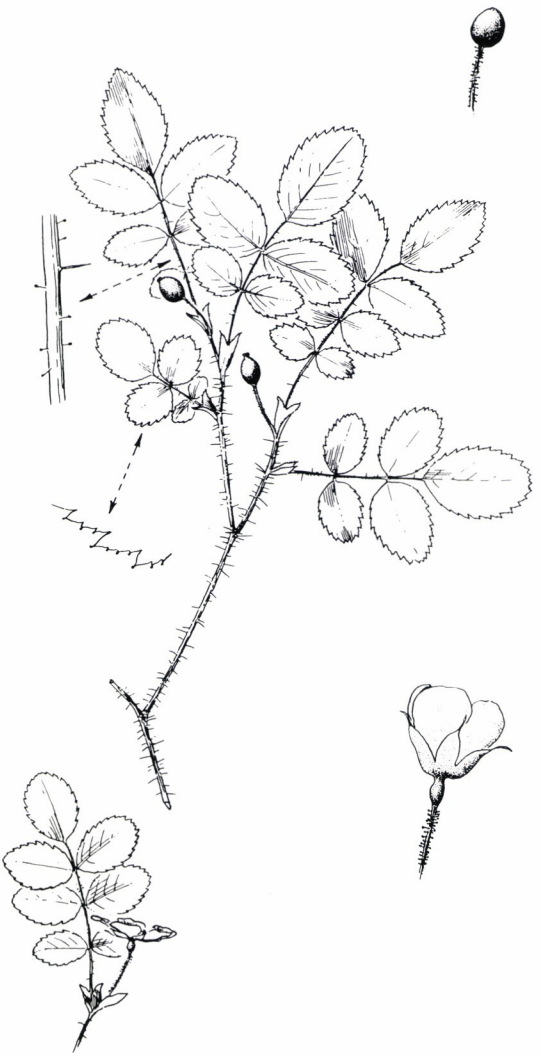
Habit: Erect, slender, finely branched low shrub (up to 3 feet tall).

Stems and Bark: Armed with many fine prickles (like a raspberry) - reddish.

Leaves: Alternate, deciduous, odd-pinnately compound; 5 to 7 leaflets; doubly serrate.

Flowers: Small (1 inch); pink to rose; borne singly (June - July).

Fruit: Small (1/2 inch) ovoid hips (green turning red).



Nootka Rose

***Rosa nutkana* (var. *hispida*)** **RONUH**
Family - Rosaceae

Range: Cascades to the Rockies in the Pacific Northwest.

Habitat: Typically mixed with pearhip rose (*Rosa woodsii*) at lower limits on warmer, drier sites. Nootka rose occurs on warmer, drier sites than baldhip rose (*R. gymnocarpa*). Nootka and pearhip rose plants may hybridize.

Look Alikes: Very similar to pearhip rose (*R. woodsii*) which has smaller flowers in terminal clusters.

Indicator Value: Found in Douglas-fir and ponderosa pine open forestlands. Also occurs as the common rose species in SYAL-ROSA and ninebark shrublands.

Miscellany: Rose hips are used in jellies and teas. A good source of Vitamin C. Plant is low in palatability. Hips are important winter food for grouse and quail.

C. Johnson

Nootka Rose

***Rosa nutkana* (var. *hispida*)** **RONUH**

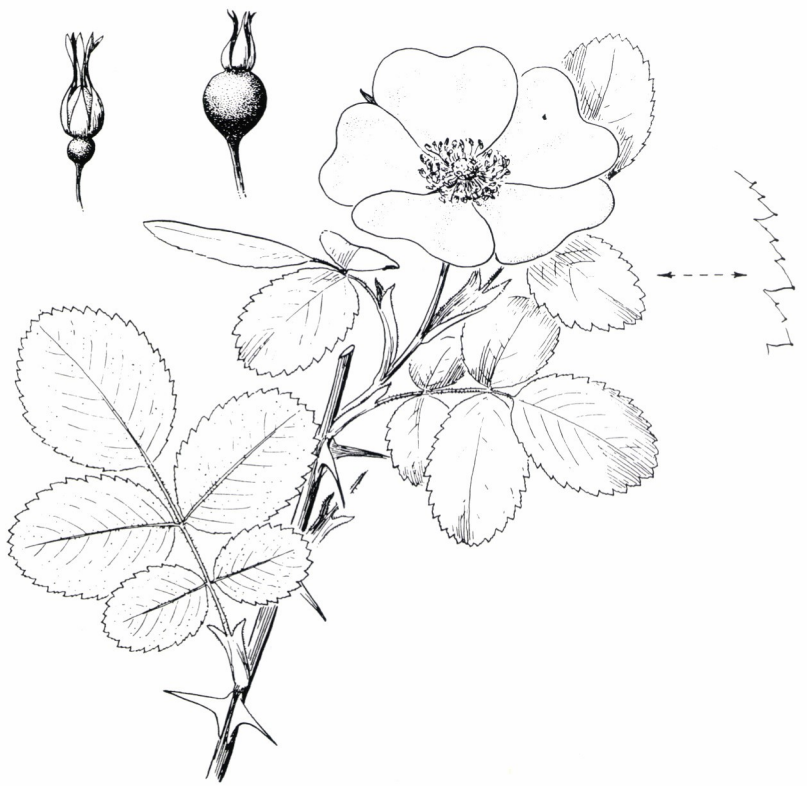
Habit: Erect, low to mid-sized shrub (2 - 6 feet tall)

Stems and Bark: Armed with pairs of straight to slightly curved spines.

Leaves: Alternate, deciduous, odd-pinnately compound (5 to 7 leaflets); serrate to doubly serrate; teeth gland-tipped.

Flowers: Large (2-3 inch); solitary at branch end; pink (May - July).

Fruit: Large purplish-red hip with sepals remaining on the hip at fruiting time.



Pearhip Rose

***Rosa woodsii* (var. *ultramontana*)** **ROWOU**
Family - Rosaceae

Range: Widespread east of the Cascades.

Habitat: Warm, dry sites typically mixed with nootka rose (*Rosa nutkana*) where they may hybridize.

Look Alikes: Very similar to nootka rose (*R. nutkana*) which has a solitary larger flower.

Indicator Value: Found in PIPO and PSME dominated forests on more moist sites than nootka rose. It is common with ninebark and snowberry.

Miscellany: Rose hips are a valuable source of Vitamin C; used in jellies and teas. Plant is low in palatability. Hips are used by bear, grouse, and quail.

C. Johnson

Pearhip Rose

***Rosa woodsii* (var. *ultramontana*)** **ROWOU**

Habit: Erect, low to mid-sized shrub (3-7 feet tall).

Stems and Bark: Armed with stout, straight to slightly curved spines.

Leaves: Alternate, deciduous, odd-pinnately compound (5-9 leaflets); singly serrate; teeth not gland-tipped.

Flower: Small (1-2 inches); clustered (3-5) in terminal cymes (May - July).

Fruit: Hips (red) with calyx persisting on the hip at fruiting time.

Thimbleberry

Rubus parviflorus **RUPA**
Family - Rosaceae

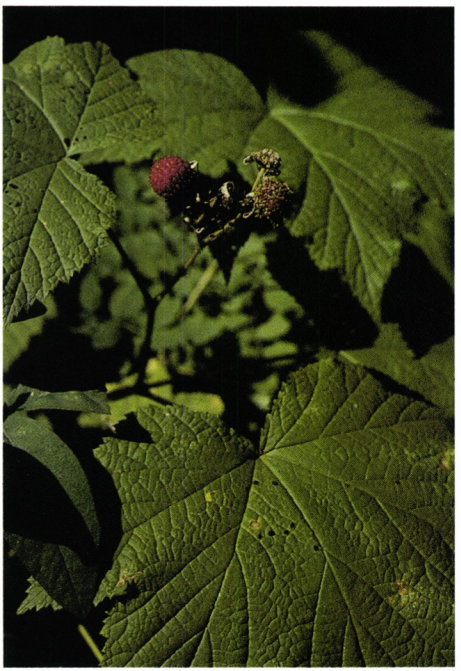
Range: Widespread from Alaska to Mexico; Great Lakes westward to Pacific Coast.

Habitat: Moist sites along stream banks in canyon bottoms to forested communities. At higher elevations (to 9,000 ft.) it can be found on exposed sites (avalanche chutes).

Look Alikes: Maple-like leaves can be mistaken for Rocky Mountain maple (*Acer glabrum*). Thimbleberry leaves are alternate; maples have opposite leaves.

Indicator Values: Most common as a cool, moist site indicator. Particularly abundant on disturbed areas (harvest, windthrow) within the forest.

Miscellany: Fruits eaten by bears, raccoons, ground squirrels, skunks, grouse and grosbeaks. Little forage value to sheep or cattle. Nez Perce used for fresh fruits. Used for jellies (too seedy for jams).



K. Urban

Thimbleberry

Rubus parviflorus **RUPA**

Habit: Erect low to mid-size shrub (3-5').

Stems: Light brown, cane-like; unarmed; bark papery, thin.

Leaves: Deciduous, alternate, simple (up to 6 inches long and 8 inches broad); palmately 5-lobed with long petioles (glandular); margins doubly serrate; dark green above; soft with small hairs.

Flower: White to pinkish white; 3-7 large flowers in flat-topped panicles (May - July).

Fruit: Red aggregate of drupelets (thimble-like).

Scouler Willow

Salix scouleriana **SASC**
Family - Salicaceae

Range: Widespread in the Pacific Northwest.

Habitat: Our upland willow. Occurs on open forested slopes, beneath semi-closed forest canopies, and reaches greatest expression following burns and clearcutting.

Look Alikes: The spatulate leaf and upland orientation indicate Scouler willow.

Indicator Value: Helps define ABGR and PSME series plant associations in early seral stages. Steep slope types contain SASC (i.e., ABGR/VAME, PSME/PHMA).

Miscellany: An early seral member which provides hiding cover, thermal cover and browse to elk, deer. Highly palatable. Native Americans used branches for basketry, fish traps, and other constructions requiring flexible yet woody material. Inner bark provides emergency food source and can be used as a poultice to heal wounds.

C. Williams

Scouler Willow

Salix scouleriana **SASC**

Habit: Tall, deciduous shrub which can reach tree size (6-30 feet tall).

Big Tree: National Champion - Willamina, Oregon (Ht. - 53', Circum. - 232", Spread - 45', Points - 296).

Idaho Champion - Valley Co. (Ht. - 45', Circum. - 68", Spread - 20', Points - 118).

Wallowa-Whitman Champion - Spout Springs, Hells Canyon NRA (Ht. - Inc., Circum. - 36", Spread - Inc., Points - Inc.).

Stems and Bark: New twigs - sparsely to densely gray hairy; older branches-brownish black. Buds are pointed and tightly pressed against stem.

Leaves: Alternate, deciduous, spatulate with entire margins, 1-3 inches long; dark green and glabrous above, glaucous with sparse reddish hairs below.

Flowers: Catkins appearing before leaves in spring (March - June).

Fruit: Hairy capsule.

Buffaloberry

Shepherdia canadensis **SHCA**
Family - Elaeagnaceae

Range: Widespread in the northern United States.

Habitat: Occurs in mid to upper elevation forest sites.

Look Alikes: Snowberries (***Symphoricarpos* spp.**) and honeysuckles (***Lonicera* spp.**) also have opposite leaves, but the rusty-brown scales on lower leaf surface of buffaloberry are diagnostic.

Indicator Value: Indicative of old burns. Occurs beneath grand fir, larch, and lodgepole pine-dominated forests.

Miscellany: A nitrogen-fixing plant. Another common name is "soapberry." The crushed berries mixed in water create a soapy froth which Native Americans sipped as a drink. Berries are tart; but with sugar added make a good jelly. Unpalatable plant. Attractive - especially in fruit.

C. Williams

Buffaloberry

Shepherdia canadensis **SHCA**

Habit: A spreading, deciduous low to medium shrub (3-6 feet tall).

Stems and Bark: Young stems - reddish brown scales cover stem; older stems - brownish.

Leaves: Opposite, deciduous, ovate, 1-2 inches long, entire margin. Upper surface is dark green; lower surface is whitish with rusty-brown scales spotted throughout.

Flowers: Small, yellow, 1-several in leaf axils; appear with or before leaves; plants are dioecious (male and female flowers on separate plants) (May - June).

Fruit: Yellowish-red translucent drupe (1/4 inch).

Birchleaf Spiraea

***Spiraea betulifolia* (old-*lucida*)** **SPBE**
Family - Rosaceae

Range: South in Cascades to north central Oregon and eastward to Rocky Mountains.

Habitat: Warm, dry sites beneath ponderosa pine and Douglas-fir with occurrence on warm, moist sites beneath successional grand fir.

Look Alikes: Hawthornes (***Crataegus* spp.**) are armed and have leaves that are serrated from mid point to apex. Serviceberry (***Amelanchier* spp.**) leaves are darker green, with coarse serrations above the mid point of the leaf, and with a distinctive paralleling venation.

Indicator Value: Found commonly in early seral stages of grand fir plant associations under lodgepole pine; late seral stages of steep-slope, open canopy grand fir communities (ABGR/VAME, ABGR/SPBE). Best expression is in Douglas-fir forests (PSME/SPBE, PSME/PHMA, PSME/HODI, and PSME/SYAL).

Miscellany: Low in palatability - increases with disturbance (skidding, overgrazing). Plant used by Native Americans for tea. Also called shiny-leaf spiraea.

C. Johnson

Birchleaf Spiraea

Spiraea betulifolia **SPBE**

Habit: Low rhizomatous shrub (8-24 inches tall); forms patches with other rhizomatous plants (snowberry, ninebark, pinegrass, elk sedge).

Stems and Bark: Erect, light yellow-brown coloration is distinctive.

Leaves: Alternate, deciduous, ovate, 1-3 inches long. Green above and paler below; coarsely double serrate from mid margin to apex.

Flowers: Small, white; borne in a dense flat-topped corymb (up to 4 inches across) (June - July).

Fruit: Glabrous follicles (5 in a cluster).

Common Snowberry

Symphoricarpos albus **SYAL**
Family - Caprifoliaceae

Range: Widespread throughout northern North America.

Habitat: A warm, dry site species where seepages or rock crevasses provide moisture in nonforest communities; optimum on warm, moist well-drained soils under ponderosa pine and Douglas-fir.

Look Alikes: Mountain snowberry (***Symphoricarpos oreophilus***) has tubular flowers and a solid, dark pith. Utah honeysuckle (***Lonicera utahensis***) has larger leaves and a solid, white pith.

Indicator Value: Commonly associated in rhizomatous understories beneath ponderosa pine (PIPO/SYAL) and Douglas-fir (PSME/SYAL, PSME/HODI, PSME/PHMA, PSME/CARU). Too warm-loving for most grand fir climax communities.

Miscellany: Berry is considered poisonous. Leaves and berries contain saponin which is poisonous. Palatability is low for livestock, but moderate on winter range for deer.

P. Brooks

Common Snowberry

Symphoricarpos albus **SYAL**

Habit: Erect, rhizomatous, low shrub (2-4 feet tall).

Stems and Bark: Branching is opposite; mature stems shred and have a hollow dark pith; grayish bark (juvenile branches may not be hollow).

Leaves: Opposite, deciduous, elliptic, 1-2 inches long, entire margins (juvenile leaves may be wavy margined and lobed).

Flowers: White or pinkish, bell-shaped, corolla lobes equal tube in length; borne in 3 to 5 flowered racemes (May - June).

Fruit: White, globose, berrylike (3/8 inch) - persisting long after leaf fall in winter time.

Mountain Snowberry

Symphoricarpos oreophilus **SYOR**
Family - Caprifoliaceae

Range: East of the Cascades to the Rocky Mountains and south to Mexico.

Habitat: Warm, dry sites at the forest edge under Great Basin climatic influence.

Look Alikes: Common snowberry (***Symphoricarpos albus***) has nontubular flowers and a hollow pith. Utah honeysuckle (***Lonicera utahensis***) has larger leaves and a solid white pith.

Indicator Value: Defines PSME/SYOR. A good indicator of warm, dry extreme for forest growth in the Blue and Wallowa Mountains; regeneration difficult. Silvicultural options are minimal; wildlife values are maximized.

Miscellany: Fruits are poisonous. Plant is moderately palatable and adds to a diversity of shrub, grass, forb species at the forest edge. Shape, color of foliage, and fall fruits give good horticultural attributes.

C. Johnson

Mountain Snowberry

Symphoricarpos oreophilus **SYOR**

Habit: Erect, nonrhizomatous, mid-sized shrub (2-5 feet tall); separated spatially as solitary individuals; vaselike form.

Stems and Bark: Young twigs - densely short hairy; old twigs - brownish, solid dark pith.

Leaves: Opposite, deciduous, elliptic-ovate (somewhat rhombic), 3/4-1 inch long; dark green (glaucous blue-green at desert edge).

Flowers: White to pinkish; elongate corolla tube longer than lobes; trumpet-like (June - August).

Fruit: Elliptic white fruits (1/4-1/2 inch) persisting into winter.

Big Huckleberry

Vaccinium membranaceum **VAME**
Family - Ericaceae

Range: Throughout the mountainous Pacific Northwest.

Habitat: Moist, cool forested montane environments at mid to upper elevations.

Look Alikes: Blue huckleberry (***Vaccinium globulare***) has leaves with a rounded tip and smaller leaves. There is an intergradation between big huckleberry and blue huckleberry in the Wallowa and Seven Devils Mountains. They are considered ecologically equivalent.

Indicator Value: The most constant plant throughout all grand fir and subalpine fir plant associations of northern Blue and Wallowa Mountains. An excellent definer of true fir site potential in the northern Blues and Wallowas. Indicates acidic soils.

Miscellany: Berries are the primary native fruit occurring in the Blue and Wallowa Mountains. Excellent eaten raw, cooked in pies, pancakes, and as cobblers. YUM! Hedged by deer and elk in thermal cover areas. Unpalatable to cattle. Major summer gathering food of the Nez Perce. The staple late summer food for black bear.

C. Johnson

Big Huckleberry

Vaccinium membranaceum **VAME**

Habit: Erect, rhizomatous low shrub (1 to 3 feet tall).

Stems and Bark: Young twigs - yellowish green and angled; older twigs - grayish with shredding bark; buds pointed and tightly appressed or sunken in stem.

Leaves: Alternate, deciduous; thin, ovate with acuminate tip, serrated margin; 1-2 inches long.

Flowers: Urn-shaped yellowish-pink; corolla longer than broad, 1/8 inch long (May - June).

Fruit: Purple to dark purplish red berry (1/4-1/2 inch broad depending on year and site). Absolutely delicious taste.

Grouse Huckleberry

Vaccinium scoparium **VASC**
Family - Ericaceae

Range: Cascades east to Rocky Mountains

Habitat: High elevation sites with heavy snowpack; cold and dry. Also occurs at lower elevations due to cold air ponding and drainageways.

Look Alikes: Not easily confused in northeastern Oregon with other huckleberries. Dwarf huckleberry (***Vaccinium myrtillus***) has larger leaves, fewer branches and a bluish to dark red berry.

Indicator Value: Defines the subalpine fir zone in northern Blues and Wallowas (ABLA2/VASC plant association). In central Blue Mountains, grouse huckleberry also indicates the cold, dry ABGR/VASC plant association. Covers many subalpine acres with lodgepole pine.

Miscellany: Berries are sweet but small; edible raw or cooked. Plant unpalatable and little browsed. Birds and animals readily use fruits.

C. Johnson

Grouse Huckleberry

Vaccinium scoparium **VASC**

Habit: Low, deciduous shrub up to 10 inches tall

Stems and Bark: Many slender upright stems (appearing broom- like); strongly angled; yellow-green; buds pointed and tightly appressed or sunken in stem.

Leaves: Alternate, deciduous, small (1/2 inch long), narrow, shiny light green upper surface; finely serrate margins.

Flowers: Pinkish, urn-shaped, small (June - August).

Fruit: Small (1/5 inch) bright red berries.

GRASSES & SEDGES

Bearded Wheatgrass

Agropyron caninum **AGCA**
Family - Gramineae

Range: Common throughout the United States from lowland elevations to the subalpine.

Habitat: Streambanks, dry slopes, ridgetops in a broad array of soils.

Look Alikes: Other wheatgrasses can be differentiated as follows: bluebunch wheatgrass (***Agropyron spicatum***) - spikelets not overlapping (as long as internodes); intermediate wheatgrass (***A. intermedium***) - unawned; pubescent wheatgrass (***A. trichophorum***) - bluish cast and a felt-like pubescence; blue wildrye (***Elymus glaucus***) - has two spikelets per node.

Indicator Value: A principal associate of green fescue communities in the Wallowa Mountains. Prominent in mid seral stands of green fescue/spurred lupine communities.

Miscellany: A very good forage for sheep, elk, and cattle but has a low tolerance to grazing pressures. Ground squirrels use seeds.

C. Johnson

Bearded Wheatgrass

Agropyron caninum **AGCA**

Habit: Strongly caespitose perennial. Nonrhizomatous.

Leaves: Blades flat; scabrous (short hairy); culms 20-36 inches tall.

Inflorescence: Spike compact with overlapping sessile spikelets on rachis (1 1/2-6 inches long); spikelets one per node (1/2-3/4" long); 4-5 flowered; glumes acute-tipped to awned; lemmas awned to awnless (awn 5-25 mm long - straight or bent) (June - August).

Bluebunch Wheatgrass

Agropyron spicatum **AGSP**
Family - Gramineae

Range: Alaska to California, east to the Dakotas and New Mexico. Widespread east of the Cascades.

Habitat: Hot, dry slopes in grasslands to warm, dry forest fringe. Occurs on shallow soil scablands where roots penetrate fissures in bedrock to tap moisture. Optimum growth occurs on deeper soil sites. Under ponderosa pine, plants are widely spaced on shallow soils.

Look Alikes: Other wheatgrasses can be differentiated as follows: bearded wheatgrass (***Agropyron caninum***) - spikelets crowded; intermediate wheatgrass (***A. intermedium***) - unawned; pubescent wheatgrass (***A. trichophorum***) - short pubescent, bluish cast; blue wildrye (***Elymus glaucus***) - two sessile spikelets per node.

Indicator Value: In absence of Idaho fescue, indicates PIPO/AGSP plant association. Often forms a forest ecotone or transition from grassland or shrub-grass steppe. A savanna plant community - difficult to extreme regeneration difficulties. May be unsuitable for silvicultural treatment.

Miscellany: Highly palatable and nutritious. Very common and abundant in the National Forests of the Blue and Wallowa Mountains. Our greatest producer of AUM's (most dry weight per acre produced by any native grass in northeast Oregon). Resists drought well. Also high in palatability and nutritious value after curing in fall and winter months. Used extensively by cattle, horses, elk, and to a lesser degree by sheep.

C. Johnson

Bluebunch Wheatgrass

Agropyron spicatum **AGSP**

Habit: Perennial, usually caespitose (bunch-forming) but may exhibit rhizomatous tendencies at higher elevations on warm, moist sites (especially with Idaho fescue); leafage usually 12-16 inches tall; culms up to 3 feet tall.

Leaves: Flat to slightly inrolled blades; prominently veined on upper surface; bluish appearance; auricle at leaf base on culm - reddish to purplish. Slight pubescence on under surface. Some plants that are hairy above and below on leaves and culms trend toward variety **pubescens**.

Inflorescence: Erect spike (3-6 inches long); spikelets - one per node (1/2-3/4 inch long); florets 6-8; glumes-acute to acuminate; lemma-awned (divurgent) up to 3/4 inch long (June - August).

Red Threeawn

Aristida longiseta **ARLO3**
Family - Gramineae

Range: British Columbia through eastern Washington and eastern Oregon to Arizona, New Mexico and Texas. Also occurs in the Great Plain states.

Habitat: Occurs on hot, dry sites with sandy, well-drained soils. Most abundant on overgrazed rangelands.

Look Alikes: Bottlebrush squirreltail (***Sitanion hystrix***) may appear similar with its awn-filled inflorescence. But it has 2 spikelets per node and long awns (not 3-parted) emerging from the glumes and lemmas.

Indicator Value: Increaser on disturbed sites. Prominent in bluebunch wheatgrass communities on sandy soils (AGSP-POSA3/granite, AGSP-POSA3/OPPO) and in sand dropseed communities (AGSP-ARLO3-SPCR). With sand dropseed overuse, red three awn will be promoted and dominate.

Miscellany: Palatable in early spring when foliage is succulent. Not used unless rangeland is very deteriorated and lacking other forage species. Will cause injury to cattle and sheep from awns. A late developing warm season grass gaining competitive advantage when other bunchgrasses are grazed early allowing the threeawn to grow, develop and disseminate seed later in spring. The seed is adapted for transport and self-seeding with its awns.

C. Johnson

Red Threeawn

Aristida longiseta **ARLO3**

Habit: Perennial bunchgrass. Strongly tufted. Culms 8-12 inches tall.

Leaves: Blades inrolled (4-8" long).

Inflorescence: Narrow panicle (2-4" long) with ascending branches; spikelet with one flower; glumes have 3-parted awns (1 1/2-3 inches long) (June - July).

Rattlesnake Brome

Bromus brizaeformis **BRBR**
Family - Gramineae

Range: A Eurasian introduction - now established widely throughout the western United States.

Habitat: Invades and increases on disturbed dry sites in grasslands and shrublands of the Intermountain Pacific Northwest; especially on over-grazed sites.

Look Alikes: May be confused with other annual bromes but when the spikelets are available it is easily recognized by distinctive awnless, oblong-ovoid "rattles." Lovegrasses (***Eragrostis* spp.**) have similar appearing spikelets which are much smaller, greater in number in the panicle and usually have a prominent rib on the lemma back.

Indicator Value: Disturbances from overgrazing, fire-damaged areas, cultivated ground. Prominent in Idaho fescue-prairie junegrass (FEID-KOCR) plant associations; Idaho fescue - bluebunch wheatgrass (FEID-AGSP) plant associations; and bluebunch wheatgrass dominated plant communities.

Miscellany: A very attractive inflorescence. Glumes often cure reddish to highlight the pleasing spikelets. Useful in dried bouquets and floral arrangements. Seeds used by quail, chukars, sparrows, mice.

C. Johnson

C. Johnson

Rattlesnake Brome

Bromus brizaeformis **BRBR**

Habit: Annual. Culms 8-24 inches tall.

Leaves: Leaf blades broad, hairy.

Inflorescence: Panicle (2-5 inches long); nodding. Spikelets few; oblong-ovate, without awns; glabrous; about 1 inch long with 9-15 flowers. A minute awn-like tip may be found on lemmas. Spikelets appear to be rattles as found on the rattlesnake - thus the common name (May - July).

Mountain Brome

Bromus carinatus **BRCA**
Family - Gramineae

Range: Alaska to Baja California; east to Alberta, the Dakotas, Wyoming, Colorado, and New Mexico.

Habitat: Warm, dry forested communities at low to mid elevations in the mountains. Also occurs with subalpine big sagebrush at mid to high elevations.

Look Alikes: Other perennial bromes which may be confused with mountain brome are: smooth brome (***Bromus inermis***) - spikelets not compound, lemma not keeled; Columbia brome (***B. vulgaris***) - culm lax; drooping panicle.

Indicator Value: Commonly occurs with subalpine big sagebrush, mountain snowberry, and common snowberry with ponderosa pine and Douglas-fir plant associations.

Miscellany: Native Americans ground seed into meal. Resists grazing pressure and drought well. Palatable to all classes of livestock early in the growing season. Cattle and horses relish seedheads. Indicates overgrazing and soil disturbance by forming dense stands. Pocket gophers use the plant preferentially. Also known as "California brome."

A. Winward

Mountain Brome

Bromus carinatus **BRCA**

Habit: Perennial, fibrous roots, culms 12-40 inches tall; culms hairy - especially near the base.

Leaves: Flat (up to 1/2 inch wide); glabrous to hairy.

Inflorescence: Narrow panicle (4-10 inches long); spikelet (3/4-1 inch long) - strongly compressed; 5-10 florets per spikelet; glumes and lemmas keeled; lemmas awned (straight) - up to 3/4 inch long (May - August).

Japanese Brome

Bromus japonicus **BRJA**
Family - Gramineae

Range: Eurasian introduction - naturalized throughout most of the United States.

Habitat: Invader of disturbed sites. Favors dry, loams on rocky, shallow soils in the canyonlands.

Look Alikes: Differentiate from other annual bromes using the bent awns at maturity and as follows: rattlesnake brome (***Bromus brizaeformis***) - awnless; cheatgrass (***B. tectorum***) - long awns (10-15 mm); hairy chess (***B. commutatus***) - awns straight; panicle branches not drooping; soft chess (***B. mollis***) - awns straight; panicle branches not drooping.

Indicator Value: Disturbance. Invades bunchgrass communities and increases with degrading of the site. Especially prominent in bluebunch wheatgrass plant associations (i.e., AGSP-POSA3/ERPU) and in sand dropseed communities.

Miscellany: Highly palatable to cattle and horses early in spring before seedhead maturity. Control by plowing under before seed maturity. Recovers rapidly from soil seed banks following fire. Can cause mechanical injury to livestock from awns. Seeds are used by chukars, quail, sparrows, gophers and mice.

C. Johnson

Japanese Brome

Bromus japonicus **BRJA**

Habit: Annual, nonrhizomatous; culms up to 2 ft. tall. Often patch-forming with extensive fibrous roots.

Leaves: Flat, broad and densely hairy. Sheaths densely hairy - directed downward. No auricles.

Inflorescence: Open panicle (3-6 inches long); pyramidal; flexuous branches which droop; pedicels longer than spikelets with 7-12 flowers (about 1 inch long). Lemma awned below the tip (twisted and bent at maturity). Awns less than 10 mm long. Flowers June - August.

Cheatgrass

Bromus tectorum **BRTE**
Family - Gramineae

Range: Eurasian introduction now widely established throughout the western United States.

Habitat: Increases on disturbed areas (especially on dry rangelands where spring moisture is abundant).

Look Alikes: Differentiate from other annual bromes using the long straight awns (greater than 12 mm) with drooping panicle. Hairy chess (***Bromus commutatus***) and soft chess (***B. mollis***) have erect panicle branches which are not drooping. Rattlesnake brome (***B. brizaeformis***) - lemmas are awnless.

Indicator Value: Disturbances (especially from overgrazing, frequent fire or agricultural cultivation). Especially prominent on bluebunch wheatgrass plant associations (AGSP-POSA3), drier Idaho fescue plant associations (FEID-AGSP), sand dropseed communities, and shrublands where bluebunch wheatgrass is subordinate (i.e., netleaf hackberry, smooth sumac plant associations).

Miscellany: Provides valuable spring forage for sheep, cattle, deer and elk. Early cheatgrass maturity in bunchgrass communities provides high flammability to fire. Favored by frequent fires; can outcompete bunchgrass on degraded sites in postburn stands due to high seed production; high percentage of seed viability; and rapid, deep root formation. Control is best achieved by plowing or chemical spray. Seeds are used by quail, sparrows, gophers and mice. Introduced chukar partridges are dependent on annual brome seeds in winter.

C. Johnson

Cheatgrass

Bromus tectorum **BRTE**

Habit: Annual. Culms 12-24 inches tall. On better sites plants may be branched at base and robust; on poorer sites the plants are usually single stemmed, shorter and with a one-sided drooping panicle. Often patch forming. Fibrous, nonrhizomatous roots.

Leaves: Flat, soft, hairy (2-4 inches long). No auricle.

Inflorescence: Drooping panicle (2-6 inches long); compact (lower branches often droop) with 4 or more spikelets. Spikelets 5-8 flowered, slender, about 1 inch long. Lemma with straight awn (10-15 mm). Inflorescence matures to orange, red or purplish color. Flowers April - June.

Columbia Brome

Bromus vulgaris **BRVU**
Family - Gramineae

Range: British Columbia to Sierras of California; east to Montana and Wyoming.

Habitat: Under firs on cool, moist forested sites at mid to upper elevations.

Look Alikes: Fairly distinctive in its appearance. The only native brome found beneath true firs. An introduced grass, smooth brome (***Bromus inermis***) is rhizomatous.

Indicator Value: The common grass occurring with queen's cup, twinflower, and big huckleberry in mid to late seral grand fir communities. Also common in ABLA2/CLUN communities and the moist, cool PSME/ACGL-PHMA sites.

Miscellany: Native Americans used brome seeds for meal. Plant is used lightly by grazing animals. Palatable.

C. Johnson

Columbia Brome

Bromus vulgaris **BRVU**

Habit: Perennial, nonrhizomatous; leafage usually 18-24 inches tall; culms up to 3 feet tall; often patch-forming.

Leaves: Drooping appearance, flat (3/8 inch wide); glabrous to hairy on both surfaces. No auricles.

Inflorescence: Open panicle (4-7 inches long); nodding or drooping. Spikelets about 1 inch long - more than 2 florets per spikelet; lemma awned (1/8-1/4 inch long) (June - August).

Pinegrass

Calamagrostis rubescens **CARU**
Family - Gramineae

Range: British Columbia south in Cascades to southern California; throughout Pacific Northwest and south in Rockies to Colorado.

Habitat: Warm, dry to cool, dry sites beneath ponderosa pine, Douglas-fir, lodgepole pine, and larch at mid elevations.

Look Alikes: Elk sedge (***Carex geyeri***) is similar in overall appearance and often grows with pinegrass. Differentiate from pinegrass using the following elk sedge characteristics: all leaves are basal, dark green, coarse, and 3-ranked. Stem is triangular. The inflorescence is a brown cigar-like spike.

Indicator Value: Indicative of fire disturbance (often conflagrational). Early seral ABLA2 and ABGR communities may contain pinegrass in abundance - i.e., PICO(ABLA2)/VASC; PICO(ABGR)/LIBO2. Late seral PSME communities contain high coverages of pinegrass (PSME/CARU, PSME/PHMA, PSME/SPBE).

Miscellany: Pinegrass resists fire. Palatability of pinegrass improves following burning. Seedstalks infrequent; abundant the year following fire. Forms dense mats resisting tree establishment. Very aggressive and competitive. Lightly used for forage except in spring when succulent and in fall when rains and frosts soften the leaves. The specific name "rubescens" refers to reddish cast of culm bases.

C. Johnson

Pinegrass

Calamagrostis rubescens **CARU**

Habit: Perennial, strongly rhizomatous grass; culm bases are reddish; leafage usually 12-16 inches tall; culms up to 3 feet tall.

Leaves: Flat, drooping blades (1/8 inch wide); mostly basally arranged; auricles lacking; collar of conspicuous hairs is diagnostic.

Inflorescence: Seldom flowers; spikelike panicle (3-6 inches long); one floret per spikelet; awn twisted and bent - attached near base of lemma and extending slightly longer than spikelet (late June - August).

Northwestern Sedge

Carex concinnoides **CACO**
Family - Cyperaceae

Range: Coniferous forests of British Columbia to northern California; east to northeast Oregon, western Montana, and the Canadian Rockies.

Habitat: Dry, cool to moist, cool sites at mid to upper montane elevations.

Look Alikes: Ross sedge (***Carex rossii***) is tufted; nonrhizomatous; 1-4 flowered; has a leafy bract subtending the entire inflorescence; spikes oriented among the leaves.

Indicator Value: Defines the true fir zone. Most prevalent in grand fir plant associations - especially ABGR/LIBO2. Indicative of disturbance with increased coverage in dense, colonizing patches.

Miscellany: Low in palatability. Increases with logging disturbance on skid trails and landings.

B. Hopkins

Northwestern Sedge

Carex concinnoides **CACO**

Habit: Loosely tufted from creeping rhizomes as "single" plants; grasslike perennial; culms 6-14 inches tall.

Leaves: Flat, wide blades (up to 1/4 inch); overwintering green; basal sheaths reddish-brown to dark brown; 3-ranked; shiny green.

Inflorescence: Solitary, terminal staminate spike with 1 to 3 pistillate spikes below; 5-12 flowered; bract subtends lowest spike and is shorter than the pistillate spike; culm droops and lies prostrate when fruits mature (April - July).

Elk Sedge

Carex geyeri **CAGE**
Family - Cyperaceae

Range: Mainly east of the Cascades from British Columbia to northern California, Utah, and Colorado.

Habitat: Warm, dry lower to mid elevation forested sites to cool, dry upper elevations in subalpine of Blue Mountains.

Look Alikes: Pinegrass (***Calamagrostis rubescens***) leaves are lighter green; not basally arranged; tuft of hair at leaf collar; awned florets; reddish culm bases. Other upland sedges have leaves that are shorter or wider.

Indicator Value: Strongly associated and often co-dominant with pinegrass. Most frequent and abundant in southern Blue Mountains. Common in Douglas-fir series plant associations (PSME/CARU, PSME/PHMA, PSME/SYAL, PSME/SYOR). Type indicator for PSME/CAGE and ABGR/CAGE plant associations in the Blue Mountains. Also prominent in subalpine fir and whitebark pine savanna of the Blue Mountain crests.

Miscellany: A heavy sod former. Fierce competitor with associated rhizomatous grasses and shrubs on forested sites. Withstands heavy grazing; highly drought tolerant. Moderately palatable when succulent in early season and early autumn after fall rains and frosts have softened foliage. Elk use is high in early spring.

C. Williams

Elk Sedge

Carex geyeri **CAGE**

Habit: Loosely clustered culms from rhizomes; appearing grass-like; evergreen perennial; culms 8-20 inches tall - triangular.

Leaves: Flat, tough, evergreen; 3-ranked; brownish dried tips; basal sheathes shiny tan to brown.

Inflorescence: Solitary bractless terminal spike; 1-3 pistillate flowers with brownish scales below; fruit a large 3-angled achene (April - July).

Hood's Sedge

Carex hoodii **CAHO**
Family - Cyperaceae

Range: Southwestern Canada to the Dakotas, Colorado, Nevada, Utah and California. Widespread in the Pacific Northwest.

Habitat: Widespread from foothills to subalpine in the mountains. Occurs in forest openings, in meadows and on slopes with scattered trees.

Look Alikes: Other sedges with heads or congested spikes may be confused with Hood's sedge. Differentiate on stature (1-3 ft.), habitat (upland sites), and by the scales of the flowers (brown with greed midrib).

Indicator Value: Type indicator for green fescue/Hood's sedge (FEVI/CAHO) and Idaho fescue - Hood's sedge (FEID-CAHO) plant associations. Also common is mountain big sagebrush/Idaho fescue (ARTRV/FEID) communities. The presence of Hood's sedge indicates meadow-steppe environments.

Miscellany: Sensitive to grazing pressure.

C. Johnson

Hood's Sedge

Carex hoodii **CAHO**

Habit: Perennial. Stems densely clustered (12-30 inches tall).

Leaves: Elongate but shorter than the culms; blades flat and soft.

Inflorescence: Several spikes clustered in a dense cyclindric head (1/2-1" long) such that individual spikes are difficult to see. Scales brown with a green midrib. Stigmas-2 (May - July).

Ross Sedge

Carex rossii **CARO**
Family - Cyperaceae

Range: Widespread in the western mountains of the United States.

Habitat: Warm, dry, often droughty sites in mid to upper montane elevations.

Look Alikes: Northwestern sedge (***Carex concinnoides***) is not tufted but sends stems rising from rhizomes; leafy bracts are shorter than the lowest spike; spikes oriented above the leaves with more than five flowers per spike.

Indicator Value: Defines the true fir zone. Most prevalent in ABGR/CLUN, ABGR/VAME, and ABLA2/VASC communities. Type indicator for PIPO/PUTR/CARO plant association of southern Blue Mountains.

Miscellany: Increases with grazing and skidding disturbance. Low to moderately palatable. Tolerates ground fires and rebounds quickly.

B. Hopkins

Ross Sedge

Carex rossii **CARO**

Habit: Densely tufted perennial grass-like sedge; triangular culms (4-8 inches tall); short rhizomes.

Leaves: Elongate, lax (1/8 inch wide); basal sheaths reddish to burgundy.

Inflorescence: Terminal staminate spike with 1-4 shorter pistillate spikes below; few flowered; leafy bract subtends lowest spike and is longer than the inflorescence (May - August).

Onespike Oatgrass

Danthonia unispicata **DAUN**
Family - Gramineae

Range: Southwestern Canada southward through the Pacific Northwest to California, Utah and Colorado.

Habitat: Dry, hot scablands to moist sites where disturbance has eliminated other perennial bunchgrasses. Occurs in forest openings and on ridges with woodlands.

Look Alikes: Very distinctive due to long hairy culms and large glumes enclosing the florets. Differentiate from other oatgrasses as follows: timber oatgrass (***Danthonia intermedia***) - multiple spikelets; erect, narrow panicle; California oatgrass (***D. californica***) - over 18" tall; multiple spikelets.

Indicator Value: Type indicator for Sandberg's bluegrass - onespike oatgrass (POSA3-DAUN) plant association. Increaser on overgrazed ridgetops where Idaho fescue is climax (FEID-KOCR, FEID-AGSP). Regularly present on scablands.

Miscellany: Usually avoided due to hairy culms by grazing animals; but is sought after on abused rangelands before plant maturity. Used by elk and deer early in season on scablands where succulent bunches provide preferred forage. Spikelets commonly are infested by smut.

C. Johnson

Onespike Oatgrass

Danthonia unispicata **DAUN**

Habit: Perennial bunchgrass. Culms 4-12 inches tall; densely tufted; long hairy. Shallow rooted.

Leaves: Blade and sheath with long hairs at the throat and collar.

Inflorescence: Panicle with a single spikelet (common name is "onespike" oatgrass); glumes 5-nerved and longer than the uppermost floret; lemmas awned from between two teeth at apex; awn bent at base and straight (about 1/2" long) (June-July).

Blue Wildrye

Elymus glaucus **ELGL**
Family - Gramineae

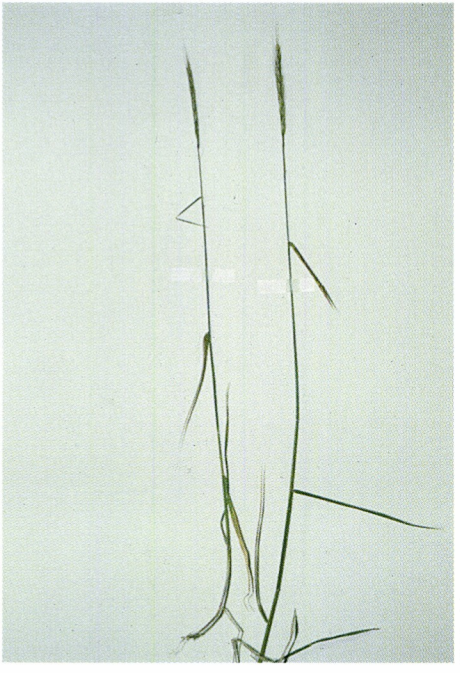
Range: Widespread in western Canada and western United States.

Habitat: Warm, moist sites at lower to mid elevations in meadows, moist seeps beneath ponderosa pine and Douglas-fir at footslope and toeslope locations.

Look Alikes: Can be confused with wheatgrasses (***Agropyron*** **spp.**). Wheatgrasses have just one spikelet per node; giant wildrye (***Elymus cinereus***) has wider leaves with a bluish cast.

Indicator Value: Indicates the clay loam soils of good grass-producing sites with a high moisture retention capability. Tree growth is slow and regeneration is impeded by these grassy meadow sites. Very shade tolerant.

Miscellany: Usually sporadic and intermingled with Kentucky bluegrass and common snowberry. Palatable to cattle and horses. Used lightly due to coarseness of foliage and seedheads. The specific name "glaucus" refers to the whitish or bluish cast of the foliage.



B. Hopkins

Blue Wildrye

Elymus glaucus **ELGL**

Habit: Caespitose perennial; nonrhizomatous; up to 3 feet tall, but lax culm gives semi-erect stature.

Leaves: Flat, broad (3/8 inch), blue-green; auricles well developed; collar often purple.

Inflorescence: Dense, erect spike (up to 6" long); spikelets - two per node; glumes - rigid and sharp; 3-5 florets per spikelet; lemma with straight awn (up to 1 inch long) (June - August).

Idaho Fescue

Festuca idahoensis **FEID**
Family - Gramineae

Range: British Columbia southward in Olympics and Cascades to Sierras and eastward to the Rockies.

Habitat: Warm, dry to warm, moist grasslands (often associated with bluebunch wheatgrass on drier sites) and extending with prairie junegrass into the ponderosa pine forested fringe.

Look Alikes: Differentiate from other fescues as follows: western fescue (*Festuca occidentalis*) - leaves light green, shorter; panicle open and drooping; rough fescue (*F. scabrella*) - unawned; sheep fescue (*F. ovina*) - panicle congested; foliage yellow-green; green fescue (*F. viridula*) - blades flat.

Indicator Value: Slightly more mesic site than PIPO/AGSP. Occurs in PIPO/SYAL and defines PIPO/FEID plant associations. Moisture limiting; regeneration may be difficult.

Miscellany: Our second most common and important grass in the Blue and Wallowa Mountains. Has a wide ecologic amplitude (canyon north slopes at 1,000 feet elevation to subalpine ridges at 8,200 feet elevation). Palatability varies (relished by elk, sheep, and cattle in canyons in spring; little used in summer in high mountain areas). Palatability increases from south to north in Blue Mountains. Once called "blue bunchgrass" from color of leaves.

C. Johnson

Idaho Fescue

Festuca idahoensis **FEID**

Habit: Strongly caespitose perennial; nonrhizomatous; foliage only 3-10 inches tall; culms up to 2 1/2 feet tall.

Leaves: Basal, fine, 2-5 inches long; green to bluish cast; tightly inrolled blades; no auricles.

Inflorescence: Narrow panicle (3-6 inches long); erect and ascending spikelets; 5-7 florets per spikelet; lemma with stout, straight, short awn (1/8 inch) (May - July).

Western Fescue

Festuca occidentalis **FEOC**
Family - Gramineae

Range: British Columbia south to central California along the coast; east of Cascades to Idaho, Montana, and Wyoming.

Habitat: Warm, moist, mid-montane forests.

Look Alikes: Differentiate as follows for the following grasses which may appear similar to western fescue: Idaho fescue (***Festuca idahoensis***) - bluish cast; narrow, erect panicle; rough fescue (***F. scabrella***) - unawned; slender hairgrass (***Deschampsia elongata***) - 2 florets/spikelet.

Indicator Value: Occurs as the fescue of the mid-montane forested plant associations on warm, sunny yet moist sites (ABGR/SPBE, PSME/PHMA, PSME/HODI).

Miscellany: Occurs in small patches or singly in shaded portions of open canopied forests. Little forage value due to size of plant and scattered occurrence.

C. Johnson

Western Fescue

Festuca occidentalis **FEOC**

Habit: Caespitose perennial with tufts of basal leaves (under 6 inches high); culms (2-3 feet tall).

Leaves: Basal tuft of inrolled leaves; soft yellow-green to light green; no auricle.

Inflorescence: Open panicle; drooping; large (4-8 inches long); spikelets few per panicle (3-5 florets per spikelet); lemmas with flexuous, slender 1/4 inch awn (late May - July).

Green Fescue

Festuca viridula **FEVI**
Family - Gramineae

Range: British Columbia to California; across Canada to Alberta; south in Rockies to Montana and Idaho. Occurs in high elevations of Wallowa Mountains in Oregon.

Habitat: Subalpine forest openings, grassy alpine and subalpine slopes and ridges and in whitebark pine savanna on cold, dry and cool, moist well-drained soils.

Look Alikes: The following fescues may be confused with green fescue: Idaho fescue (***Festuca idahoensis***) - blades inrolled; bluish cast; narrow panicle; rough fescue (***F. scabrella***) - lower elevations; blades inrolled; sheep fescue (***F. ovina***) - panicle congested; blades inrolled.

Indicator Value: Indicative of whitebark pine and alpine zones. Regeneration extremely difficult. Unsuitable for timber management.

Miscellany: Provides valuable sod cover to fragile high elevation sites. Degradation of green fescue communities results in rapid and severe erosion of soils. Very palatable to sheep and cattle. Ranks with bluebunch wheatgrass and timothy as one of most nutritious of grasses.

C. Johnson

Green Fescue

Festuca viridula **FEVI**

Habit: Densely caespitose perennial; foliage 6-12 inches tall; culms 16-32 inches tall; extensive fibrous roots bind soil to 3 foot depth or greater.

Leaves: Flat blades (up to 1/8 inch wide); green; no auricles.

Inflorescence: Open panicle (2 1/2-6 inches long); spikelets (3/8-1/2 inch long); 3-6 florets per spikelet; lemma awnless or minutely awned (June - July).

Parry's Rush

Juncus parryi **JUPA**
Family - Juncaceae

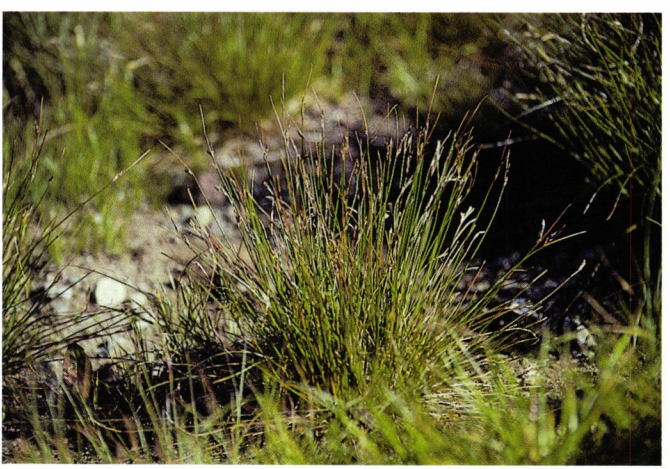
Range: British Columbia to California in Cascades and Sierras, eastward to the Rocky Mountains from Alberta to Colorado.

Habitat: Alpine and subalpine meadows and slopes. Also along streams and lake margins.

Look Alikes: Other rushes may be confused, especially those with inflorescences below the tip of the flowing stems. Drummond's sedge (*Juncus drummondii*) often occurs nearby but is leafless. Use the brownish flowers (instead of greenish) and the inflorescences occurring below the top of the flowering stems to differentiate Parry's rush from others.

Indicator Value: Moist areas on relatively dry and stony slopes at subalpine and alpine elevations. Occurs with green fescue in mid and late seral plant associations.

Miscellany: Due to its wiry stems and short leaves the plant is usually avoided by grazing animals. Native Americans used rushes for baskets and mats. Also used rushes to teach children how to weave.



C. Johnson

Parry's Rush

Juncus parryi **JUPA**

Habit: Perennial. Densely tufted with numerous stems (4-12 inches tall).

Leaves: Upper leaf blades 1/2-1 1/2 inches long; basal leaves absent or with bristle-like blades growing from basal sheaths.

Inflorescence: 1-3 single, brownish flowers grouped together below the top of the flowering stem and subtended by 2 brownish bracts. Six stamens with anthers much longer than the filaments (July - September).

Prairie Junegrass

Koelaria cristata **KOCR**
Family - Gramineae

Range: British Columbia south throughout much of the United States.

Habitat: Variable with wide amplitude. Strong fidelity with Idaho fescue on upper canyon slopes and grassy ridges on warm, dry sites. Occurs at higher montane elevations on well drained soils.

Look Alikes: Prairie junegrass may be differentiated from the following grasses as follows: Bluegrasses (*Poa* spp.) - parallel grooves on upper leaf surface; keeled leaf apex; timothy (*Phleum* spp.) - spikelet 1-flowered; glumes ciliate on keel; spike trisetum (*Trisetum spicatum*) - lemma with bent awn.

Indicator Value: Indicative of mesic ponderosa pine climax plant associations (PIPO/SYAL, PIPO/FEID) and associated with fescues in subalpine grasslands beneath whitebark pine savanna on cool, dry sites.

Miscellany: Occurs as scattered individuals rather than in pure stands. Used early by all livestock, but provides minor component of forage intake due to plant size.

C. Johnson

Prairie Junegrass

Koelaria cristata **KOCR**

Habit: Caespitose perennial, densely tufted; culms 1-2 feet tall - often downy.

Leaves: Flat (sometimes folded) - 1/8 inch wide; deeply grooved parallel to midvein on top surface; margins hairy; no auricles.

Inflorescence: Dense spike-like panicle (2-5 inches long); silvery (shining); spikelets 2 to 4 flowered; lemma awnless to awn-tipped (May - July).

Purple Oniongrass

Melica spectabilis **MESP**
Family - Gramineae

Range: British Columbia south to northern California (east of Cascades) and eastward to Montana, Wyoming, and Colorado.

Habitat: Subalpine forest openings; grassy alpine and subalpine slopes and ridges; whitebark pine savanna on cold, dry and cool, moist well-drained soils.

Look Alikes: The following grasses may be differentiated from purple oniongrass as follows: Alaska oniongrass (***Melica subulata***) - lemmas acuminate; little oniongrass (***M. fugax***) - open panicle; bulbous oniongrass (***M. bulbosa***) - culms densely clustered; Columbia brome (***Bromus vulgaris***) - droopy; open panicle-nodding; awned.

Indicator Value: Indicative of whitebark pine and alpine zones. Regeneration extremely difficult. Unsuitable for timber management.

Miscellany: Highly palatable for cattle, horses; average palatability for deer, elk, and sheep.

C. Johnson

Purple Oniongrass

Melica spectabilis **MESP**

Habit: Rhizomatous perennial; culms 12-32 inches tall; bulbous-based and spaced about 1 inch apart on the rhizome.

Leaves: Blades flat; 3/10 inch wide.

Inflorescence: Narrow panicle (3-6 inches long); spikelets erect, purplish; 3-8 florets/spikelet; lemma blunt (late May - July).

Wheeler's Bluegrass

***Poa nervosa* (var. *wheeleri*)** **PONEW**
Family - Gramineae

Range: Widespread in the western United States.

Habitat: Commonly occurs beneath older ponderosa pine and Douglas-fir at their bases.

Look Alikes: Differentiate from other bluegrasses (***Poa* spp.**) using the flattened spikelets, noncob-webby lemmas, and rhizomatous habit of the plant.

Indicator Value: PSME/CARU, PSME/SYAL, PIPO/SYAL, PIPO/FEID plant associations.

Miscellany: Low in palatability. Plants are scattered and have sparse foliage.

B. Hopkins

Wheeler's Bluegrass

***Poa nervosa* (var. *wheeleri*)** **PONEW**

Habit: Rhizomatous perennial, tufted; culms (12-30 inches tall); lower sheaths reddish-purple.

Leaves: Flat to folded (1/16 inch wide); tips prow-shaped.

Inflorescence: Small panicle (2-4 inches long); loose; rachilla branches drooping to ascending; spikelets (1/4-1/2 inch long); 4 to 7 florets per spikelet; lemma not webbed at base; strongly keeled (April - August).

Kentucky Bluegrass

Poa pratensis **POPR**
Family - Gramineae

Range: Widespread in Canada and the United States.

Habitat: Early seral stands in degraded grasslands at lower to upper canyon and montane elevations on warm, moist to warm, dry sites on loams and clay loam soils.

Look Alikes: Similar to Canada bluegrass (***Poa compressa***) which has strongly flattened culms.

Indicator Value: Aggressively occupies overgrazed, scarified sites replacing Idaho fescue.

Miscellany: The most valuable and widely used lawn grass in temporate regions. Withstands heavy grazing and increases or invades on abused sites. Introduced from England by William Penn. Highly palatable to all livestock and wild ungulates.

B. Hopkins

Kentucky Bluegrass

Poa pratensis **POPR**

Habit: Rhizomatous perennial; turf-forming; foliage (up to 12" tall); culms may reach 3 feet tall on mesic sites.

Leaves: Blades flat (3/16 inch wide); tips prow-shaped; auricles lacking.

Inflorescence: Spreading panicles (1-4 inches long); spikelets ascending, 3-5 florets per spikelet; lemma strongly keeled, cob-webby at base; awnless; purplish tinged florets (May - October).

Sandberg's Bluegrass

***Poa sandbergii* (old-*P. secunda*)** **POSA3**
Family - Gramineae

Range: Alaska to British Columbia and Saskatchewan throughout Pacific Northwest to California, Nevada, northern Arizona, New Mexico and east to Nebraska.

Habitat: Relatively dry grasslands, scablands, and in drier shrublands across a wide variety of climatic, edaphic, and elevational extremes.

Look Alikes: Differentiate from other bluegrasses as follows: Wheeler's bluegrass (*Poa nervosa* var. *wheeleri*) - taller (over 12"); rhizomatous; spikelets flattened; Kentucky bluegrass (*P. pratensis*) - blades wide and flat; rhizomatous; pine bluegrass (*P. scabrella*) - taller (over 15"); basal leaves longer (3-6 inches long).

Indicator Value: Increases with overgrazing in Idaho fescue ridgetop plant associations; is a strong component of all bluebunch wheatgrass plant associations (except where steep slopes and surface movement preclude its establishment); and occupies all scabland plant associations. Type indicator for Sandberg's bluegrass - onespike oatgrass plant associations.

Miscellany: Important forage species in spring and fall when rains promote rapid vegetative growth before and after development of the primary bunchgrasses. Root system with deeply penetrating fibrous roots make it an effective soil binder. Highly resistant to summer drought (goes dormant) and fire.

C. Johnson

Sandberg's Bluegrass

***Poa sandbergii* (old-*P. secunda*)** **POSA3**

Habit: Perennial bunchgrass. Densely tufted with early withering leaves. Often purplish tinged from strong sunlight exposure and dry sites. Culms (4-12 inches tall) are erect and wiry.

Leaves: Usually only 1 or 2 on the culm - the rest basal. Blades flat, folded, or inrolled (1-2 inches long). Leaf tip boat-shaped; double midrib grooves on upper leaf surface. Basal leaves usually 1-3 inches long.

Inflorescence: Panicle (2-4 inches long); narrow or open - not dense. Panicle branches ascending. Spikelets only 4-6 mm long; 2-4 flowered; rounded and pointed; lemma purplish-tinged with short hairs at base. Unawned (April - June).

Bottlebrush Squirreltail

Sitanion hystrix **SIHY**
Family - Gramineae

Range: British Columbia to Alberta; southward to southern California, Arizona, New Mexico, Texas, Oklahoma. From sea level to subalpine and alpine locations. The variety ***Sitanion hystrix hordeoides*** occurs on scablands in the inland Pacific Northwest, northern Nevada and northern California.

Habitat: Dry, exposed sites in plains, valleys, foothills, mountains. Abundant on disturbed sites.

Look Alikes: Very distinctive but may be confused with the following: red threeawn (***Aristida longiseta***) - only one spikelet per node; awns three-parted; foxtail barley (***Hordeum jubatum***) - 3 spikelets per node; nodding inflorescence; purplish; dwarf bottlebrush squirreltail (***S. hystrix* var. *hordeoides***) - plants usually less than 12 inches tall.

Indicator Value: Disturbances. Increaser on subalpine rangelands from overgrazing; invader of lower elevations grasslands where overgrazing and erosion have combined to degrade the native fescue and wheatgrass communities. Prominent in buckwheat plant communities (ERDO/POSA3, ERST2/POSA3) and mountain big sagebrush/bunchgrass communities.

Miscellany: Provides good forage before development of seedheads. Unpalatable in mid summer due to awns, but can provide fall and winter forage after awns dislodge. The loosely clustered culms burn rapidly in a fire with little heat transferred to the crown; thus the species is one of the most fire-resistant bunchgrasses.

K. Urban

Bottlebrush Squirreltail

Sitanion hystrix **SIHY**

Habit: Perennial bunchgrass (12-24 inches tall); culms stiff; usually hairless.

Leaves: Blades flat, folded, or inrolled (2-8 inches long); auricles small or lacking.

Inflorescence: Erect spike (1-6 inches long) with 2 spikelets per node. Spikelets 2-3 per node; 1-6 flowered; glumes extend to long awns (1-4 inches long); lemmas with an extended awn (up to 8 inches long) and spreading widely into a "bottlebrush" (May - July).

Sand Dropseed

Sporobolus cryptandrus **SPCR**
Family - Gramineae

Range: British Columbia to southern California (east of the Cascades) and east in the United States (except for SE). Most prominent in the southwest. Locally prominent in the Snake and Columbia River drainages.

Habitat: Sandy soils; achieves best growth where early summer rains occur. Intolerant of alkaline and wet soils. Invades rocky toeslopes and benchlands adjacent to its natural habitat along riverbars, terraces and alluvial fans. Very tolerant of drought.

Look Alikes: Very distinctive with cane-like culms grooved on one side.

Indicator Value: Type indicator on river terraces and alluvial fans where the species forms a climax community. Invader and increaser in bluebunch wheatgrass climax grasslands where overgrazing has depleted the native bunchgrasses.

Miscellany: Provides good forage for grazing animals when it is green in early summer and helps provide cured, standing winter forage following softening of culms by autumn moisture. Gains competitive advantage over other bunchgrasses (especially bluebunch wheatgrass) as a warm-season developing bunchgrass when spring use is concentrated on other plants leaving sand dropseed to develop and mature after the pressure has diminished. Produces abundant seed and readily invades disturbed sites. Not damaged by fire as rapid rate of spread lowers intensity of the burn. Seeds are edible - best parched and ground into a flour.

C. Johnson

Sand Dropseed

Sporobolus cryptandrus **SPCR**

Habit: Perennial bunchgrass (culms 12-28 inches tall). Gives the appearance of an annual grass due to lax plant base and small tuft. Culms solid and strongly grooved.

Leaves: Blades inrolled with long hairs tufted at the collar; no auricles.

Inflorescence: Panicle (up to 10 inches long); usually partially included in sheath; spikelets 1-flowered; small (2.5 mm long); unawned (June - July).

Western Needlegrass

Stipa occidentalis **STOC**
Family - Gramineae

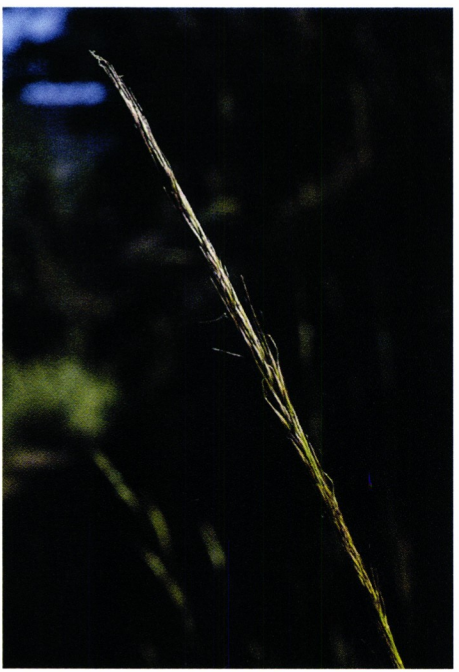
Range: British Columbia to southern California; eastward to the Dakotas and south to southwest Texas.

Habitat: Dry grasslands in the foothills; in open mountain woodlands; and ridges at high elevations of the subalpine.

Look Alikes: Possibly could be confused with bluebunch wheatgrass (***Agropyron spicatum***) - awned spikelets aligned on a spike; spike trisetum (***Trisetum spicatum***) - glumes envelope 2 florets; each floret awned from back but bent just once. Other needlegrasses can be differentiated as follows: needle and thread (***Stipa comata***) - awn over 4 inches long; Lemmon's needlegrass (***S. lemmonii***) - subterminal awn; Letterman's needlegrass (***S. lettermanii***) - awn less than 3/4 inch long; glabrous.

Indicator Value: Increaser, especially on sheep ranges. Common in green fescue plant associations. Type indicator for subalpine fir/western needlegrass (ABLA2/STOC) plant community type in Blue Mountains. Commonly found in ponderosa pine climax communities where mountain-mahogany and bitterbrush occur.

Miscellany: Provides fair forage for sheep, deer and elk; good forage for cattle prior to maturity of seedheads. Becomes unpalatable after maturity. Since it is avoided after maturity, it has a competitive advantage over grazed decreaser grasses (i.e., bluebunch wheatgrass, Sandberg's bluegrass). May regrow in fall with adequate moisture. Seeds are used by sparrows, lazuli buntings, and chipmunks.



K. Urban

Western Needlegrass

Stipa occidentalis **STOC**

Habit: Perennial bunchgrass; culms slender (10-16 inches tall).

Leaves: Fine, inrolled leaves (4-10 inches long).

Inflorescence: Panicle (4-10 inches long); narrow with ascending branches. Spikelets congested. Lemma hairy; awned with double twist; awn bent in 2 places (approx. 1 inch long) and pubescent (May - August).

FORBS

Western Yarrow

***Achillea millefolium* (var. *lanulosa*)** **ACMIL**
Family - Compositae

Range: Wide ranging from Manitoba to British Columbia, south to Kansas, New Mexico, Arizona, California and northern Mexico.

Habitat: Wide range of sites - plains to subalpine in dry, open areas; from bunchgrass to forest.

Look Alikes: The fern-like leaves are very distinctive. Scarlet gilia (*Gilia aggregata*) leaves are also pinnatifid but have no fine leaflets (are more skeletal). At subalpine and alpine elevations (over 8,000') the variety *alpicola* is differentiated by dark brown to black involucral bract margins.

Indicator Value: Disturbance indicator. Resistant to heavy use and forms dense stands on old bedding grounds or salt grounds. Present in virtually all nonforest plant associations (especially Idaho fescue and bluebunch wheatgrass plant associations). Common in Douglas-fir and ponderosa pine forested plant associations.

Miscellany: The most common plant in the inland Pacific Northwest. Low in palatability. Used primarily by sheep, pronghorns and deer when it is succulent in early season. Sage grouse also use the plant. Flower heads are most sought after part of the plant. Nez Perce ground dried plants into flour; used leaves to stop bleeding and heal rashes; made tea from leaves to stop fevers. A blood clotting extract from the plant (achillein) used by pharmacists today to reduce blood clotting time. A tea from stems, leaves and flowers helps regulate digestion and reduce lethargy. Good for dried wintertime floral arrangements.

K. Urban

Western Yarrow

***Achillea millefolium* (var. *lanulosa*)** **ACMIL**

Habit: Perennial forb. Aromatic; rhizomatous.

Stems: Erect (4-40 inches tall); single stem with some sidebranches; glabrous to pubescent.

Leaves: Alternate, pinnately dissected (cauline leaves sessile; lower leaves petioled); up to 6 inches long; fern-like in appearance; lightly pubescent.

Flowers: Numerous heads (3-5 white rays) in a flat-topped corymb (April - October).

Fruit: Achene.

Trail Plant, Pathfinder

Adenocaulon bicolor **ADBI**
Family - Compositae

Range: West of Cascades, eastward to northern Idaho and northwestern Montana.

Habitat: Warm, moist sites at mid to low elevations in the mountains.

Look Alikes: The heart-shaped leaves of heartleaf arnica (*Arnica cordifolia*) are similar but without a dense white hairy undersurface.

Indicator Value: A good grand fir site potential indicator; especially prominent in ABGR/CLUN and ABGR/VAME late seral stands.

Miscellany: The common names are derived from path marked by the overturned leaves showing whitish undersides from the passerby. Unpalatable.

C. Johnson

Trail Plant, Pathfinder

Adenocaulon bicolor **ADBI**

Habit: Deciduous, perennial forb; up to three feet tall.

Leaves: Alternate, triangular to heart-shaped, mostly basally arranged blades on long petioles; dark green above, densely white woolly beneath; shallowly lobed margins; up to 6 inches wide.

Flowers: Small, white heads (June - September).

Fruit: Achene with glandular stalks (for clinging to passing pantlegs).

Nettleleaf Horsemint

Agastache urticifolia **AGUR**
Family - Labiatae

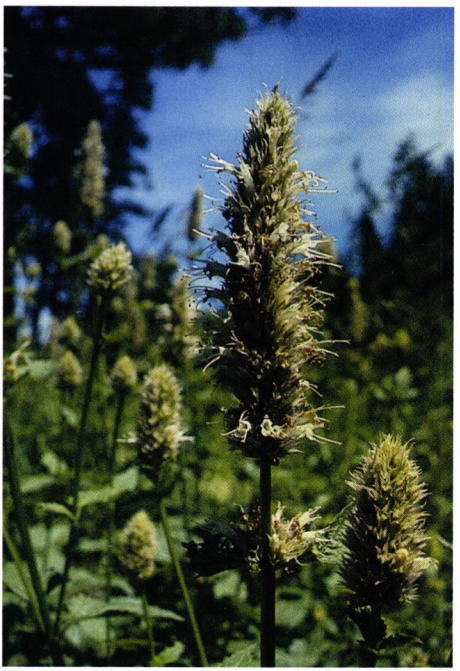
Range: Southeastern British Columbia to western Montana, eastern Washington, eastern Oregon to Colorado and California.

Habitat: On open slopes from the foothills to high elevation ridges and forest openings. Often forms dense stands on overgrazed sites at higher elevations. Commonly found with mountain brome, bluebells on degraded green fescue sites.

Look Alikes: May be confused with other mints having square stems but the large size of this plant with its dense terminal spikelike inflorescence makes it distinctive. Stinging nettle (*Urtica dioica*) is tall with opposite, large leaves but its leaves and stems are pubescent (stinging hairs) with paniculate inflorescence in the leaf axils (not spike-like at top of plant).

Indicator Value: Increaser with overgrazing. Common in mountain snowberry and ninebark shrubland plant associations.

Miscellany: Provides fair forage for cattle; good forage for sheep, deer and elk. Seeds may be eaten (raw or cooked).



K. Urban

Nettleleaf Horsemint

Agastache urticifolia **AGUR**

Habit: Perennial herb (1 1/2-5 feet tall); fibrous rooted; strongly aromatic.

Stems: Erect; numerous from a woody caudex; square in cross section.

Leaves: Simple; opposite; blades coarsely scalloped; ovate to deltoid (2-4 inches long); petiole up to 2 inches long; glabrous.

Flowers: Dense spikelike inflorescence (1 1/2-6 inches long); calyx tinged lavender - purple; corolla irregular, tubular; white to rose or purplish; upper lip notched; lower lip 3-lobed. Stamens exerted (June - August).

Fruit: Nutlets.

Pearly Everlasting

Anaphalis margaritacea **ANMA**
Family - Compositae

Range: Widespread in Pacific Northwest.

Habitat: Forest openings; proliferates following disturbance (clearcuts, roadcuts).

Look Alikes: Tall pussytoes (*Antennaria anaphaloides*) leaves diminish in size up the stems; cudweeds (*Gnaphalium* spp.) have dense hairs over entire plant.

Indicator Value: Defines true fir potential sites - especially in disturbed stands.

Miscellany: A good horticultural plant - easily transplanted. Dried plants make long-lasting floral arrangements. Used as tobacco substitute by Native Americans. Unpalatable. Invades and increases due to rhizomes and seed mobility.

C. Johnson

Pearly Everlasting

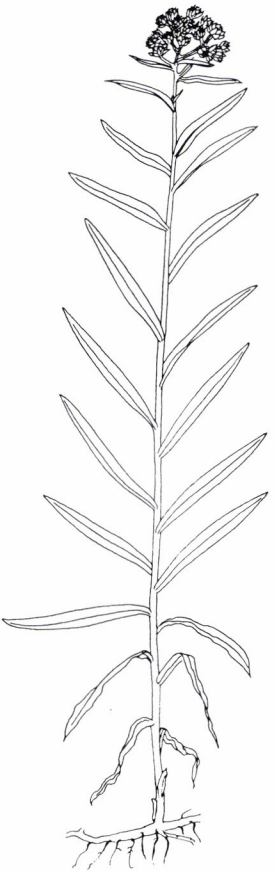
Anaphalis margaritacea **ANMA**

Habit: Erect, deciduous, rhizomatous perennial (8-30 inches tall).

Leaves: Alternate, sessile, narrow lanceolate (up to 5 inches long); entire margins, inrolled; white woolly hairs.

Flowers: Many small white flowers in heads (1/4-3/8 inch wide); involucral bracts papery, white; crowded into broad inflorescences; "pearly" refers to white, rounded heads and involucre bracts (June - September).

Fruit: Achene.



Piper's Anemone

Anemone piperi **ANPI**
Family - Ranunculaceae

Range: Eastern Washington, northeast Oregon, north and central Idaho to western Montana.

Habitat: Shady, forested sites in Douglas-fir and true fir plant associations.

Look Alikes: Sweet cicely (*Osmorhiza chilensis*) leaflets are very similar. Differentiate using the licorice taste. Fruits and flowers are distinctively different. Goldthread (*Coptis occidentalis*) leaflets are shiny and more ovate than anemone leaves.

Indicator Value: Highly associated with VAME, LIBO2, and CLUN in true fir plant associations.

Miscellany: Used as an ointment by Native Americans to treat ulcerations; internally for lockjaw.

C. Johnson

Piper's Anemone

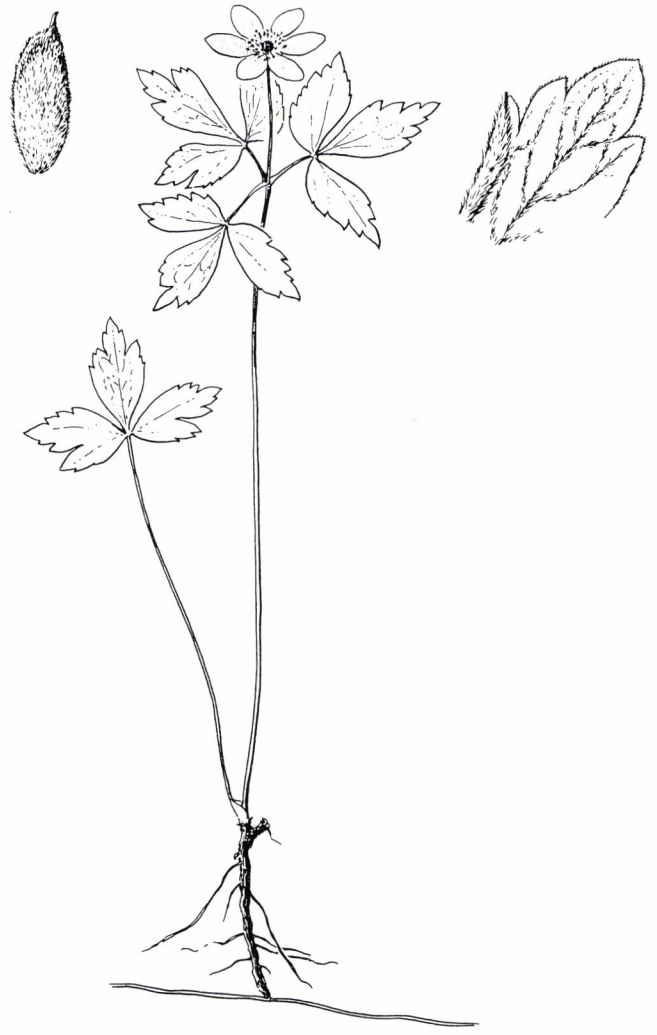
Anemone piperi **ANPI**

Habit: Erect, deciduous, rhizomatous perennial (up to 14 inches tall).

Leaves: Basal leaves may be lacking - if present, a single leaf with three doubly serrate leaflets; cauline leaves in whorl of three short-petioled leaves of three leaflets each. Coarsely serrate and incised.

Flowers: Apetalous; sepals solitary, white or pinkish, flowers 3/4-1 inch wide (late April to early August).

Fruit: Hairy, elliptic achene.



Woodrush Pussytoes

Antennaria luzuloides **ANLU**
Family - Compositae

Range: Southern British Columbia to western Montana, western Wyoming, Idaho, eastern Washington and eastern Oregon to northern Colorado, northern Utah and northern California.

Habitat: Dry, open foothills to ridges and openings in the forest at moderate elevation in the mountains.

Look Alikes: Differentiate from other pussytoes as follows: low pussytoes (***Antennaria dimorpha***) - less than 4" tall; solitary head; rosy pussytoes (***A. rosea***) - involucral bracts deep pink to white (not brown); narrowleaf pussytoes (***A. stenophylla***) - involucral bases black; leaves only 1-2 mm wide. Pearly everlasting (***Anaphalis margaritacea***) - larger, lacks basal rosette leaves, leafy stem with leaves of equal length up the stem.

Indicator Value: Increase on degraded bunchgrass and sagebrush sites. Forms part of the bunchgrass community by occupying thin soils and interspaces between the bunchgrasses. Help protect the soil from erosion. Prominent in FEID-AGSP ridgetops, AGSP-POSA3 and ARRI/POSA3 scablands.

Miscellany: The gum of the flowering stalks can be chewed.

K. Urban

Woodrush Pussytoes

Antennaria luzuloides **ANLU**

Habit: Low perennial herb (6-24 inches tall) forming rosettes.

Stems: Clustered from a branched, woody caudex; herbage gray-hairy to woolly; usually less than 12 inches tall.

Leaves: Basal-erect, linear-oblanceolate (1 1/2-3 inches long) (2-8 mm wide); cauline - alternate; more linear than basal leaves; reduced upwards progressively.

Flowers: Dioecious; flowers often all pistillate and reproduce without fertilization; numerous heads in a corymb; lower involucral bracts pale greenish brown; upper parts of bracts whitish; disk flowers only (no rays) (May - July).

Fruit: Achene.

Prickly Sandwort

Arenaria aculeata **ARAC2**

Family - Caryophyllaceae

Range: Southwestern Montana, central Idaho, northeastern Oregon to Utah, Nevada and northeastern Nevada.

Habitat: Open, rocky slopes, ridges, crevices in rock outcrops from 5,500 ft. to alpine.

Look Alikes: The linear, sharp, needle-like leaves form mats which are distinctive. Differentiate from other sandworts as follows: ballhead sandwort (***Arenaria congesta***) - inflorescence headlike (congested); bigleaf sandwort (***A. macrophylla***) - leaves broad (up to 15 mm).

Indicator Value: Broad ecologic range - from sagebrush desert to alpine slopes. Especially common on granitic-derived soils in the whitebark pine and drier subalpine fir plant associations.

C. Johnson

Prickly Sandwort

Arenaria aculeata **ARAC2**

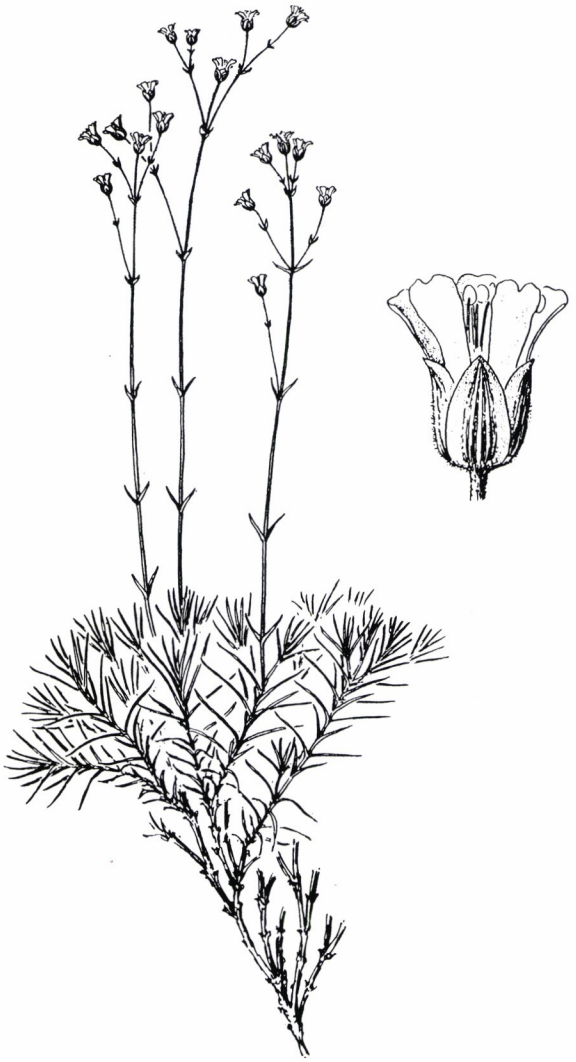
Habit: Perennial; mat-forming from branched caudex (2-6 inches tall).

Stems: Flowering stems numerous (4-8 inches tall); glandular pubescent above.

Leaves: Mostly basal (1/2-1 inch long); linear, rigid (needle-like); glaucous; sharp pointed ("pin cushion"); only 1-2 pairs of stem leaves (less than 5 mm long).

Flowers: Open, diffuse cymes; sepals obtuse and purplish-tinged; glandular; petals twice as long as sepals; white (June-August).

Fruit: Capsule.



Bigleaf Sandwort

Arenaria macrophylla **ARMA3**
Family - Caryophyllaceae

Range: Widespread in the Pacific Northwest.

Habitat: Open to closed canopy forests; warm, dry to warm, moist environments.

Look Alikes: Sticky chickweed (*Stellaria jamesiana*) leaves are also opposite, but lanceolate and several times longer than broad (1-4 inches long).

Indicator Value: Occurs in Douglas-fir, grand fir, and subalpine fir plant associations; most abundant on areas where shading animals have created disturbance.

Miscellany: Ubiquitous, small plant appearing as an annual throughout many of our forested understories. Unpalatable.

C. Williams

Bigleaf Sandwort

Arenaria macrophylla **ARMA3**

Habit: Deciduous, perennial (2-6 inches tall); extensive slender rhizomes, mat-forming.

Leaves: Opposite, linear-elliptic to lanceolate, 1-2 inches long, entire margin, dark green.

Flower: White, petals shorter than sepals, 2-5 flowers on long petioles, borne in terminal cymes (May - August).

Fruit: Globose capsule.

Heartleaf Arnica

Arnica cordifolia **ARCO**
Family - Compositae

Range: Pacific Northwest (rare west of Cascades).

Habitat: Warm, moist forests at mid elevations.

Look Alikes: Mountain arnica (***Arnica latifolia***) has several floral heads per stem; sessile cauline leaves; nonembedded veins in leaves.

Indicator Value: Mountain arnica (***A. latifolia***) may hybridize with heartleaf arnica. Wooded, open forest understories often have high compositions of heartleaf arnica. Very common in PSME/SYOR, PSME/SPBE, and ABGR series plant associations. Increases with overgrazing.

Miscellany: Native Americans used flowers in a steeped solution as a salve to wounds or cuts. Palatability is low - flowers used by sheep and horses.

P. Brooks

Heartleaf Arnica

Arnica cordifolia **ARCO**

Habit: Deciduous, perennial forb (4-24 inches tall); rhizomatous

Leaves: Opposite, heart-shaped, toothed (2-5 inches long), fuzzy hairy, veins embedded; cauline leaves reduced and petiolate - becoming sessile at top of stem.

Flowers: Yellow rays; heads - 1 per stem; involucre bracts densely hairy (April - June).

Fruits: Achene - short hairy to glandular.

Mountain Arnica

Arnica latifolia **ARLA**
Family - Compositae

Range: Throughout the Pacific Northwest.

Habitat: Cool, moist forests at upper elevations.

Look Alikes: Heartleaf arnica (*Arnica cordifolia*) has one head per stem; petiolate cauline leaves; veins embedded in leaves.

Indicator Value: Heartleaf arnica (*A. cordifolia*) may hybridize with mountain arnica. Open forest, especially where disturbed, contain high compositions of mountain arnica. Common in PSME and ABLA2 series plant associations.

Miscellany: Native Americans used flowers in a steeped solution as a salve to wounds or cuts. Palatability is low; flowers used by sheep and horses.

C. Johnson

Mountain Arnica

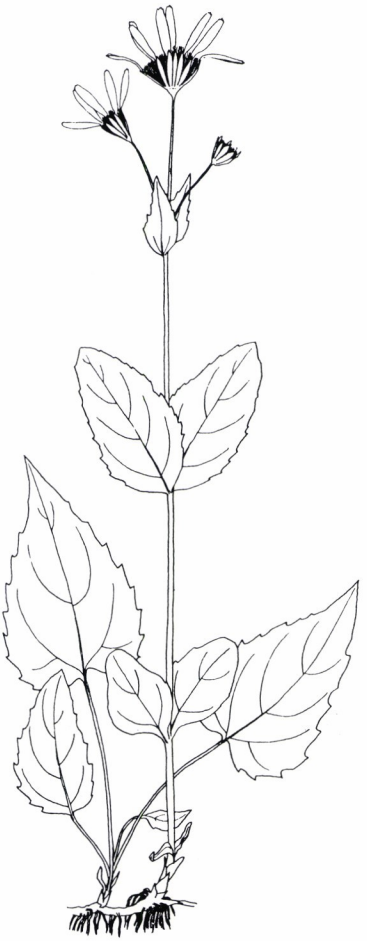
Arnica latifolia **ARLA**

Habit: Deciduous, perennial forb (4-24 inches tall); rhizomatous.

Leaves: Opposite, lance-shaped to heart-shaped, toothed (1-6 inches long), glabrous to hairy, veins not embedded; cauline leaves sessile and similar in size to basal leaves.

Flowers: Yellow rays; heads several per stem involucre bracts, glabrous to few haired (June - July).

Fruit: Achene - glabrous, or short hairy on upper part of fruit.



Twin Arnica

Arnica sororia **ARSO**

Family - Compositae

Range: Alberta and British Columbia to Washington, Oregon, Idaho, Wyoming, Utah and California.

Habitat: Canyons, foothills and lower elevations in the mountain in bunchgrass communities.

Look Alikes: Very similar to orange arnica (***Arnica fulgens***) which has long brown wool in leaf axils. Heartleaf arnica (***A. cordifolia***) has heart-shaped leaves. Twin arnica could be confused with other yellow composites like: woolly goldenweed (***Haplopappus lanuginosus***) - leaves only 2-7 mm wide; dwarf yellow fleabane (***Erigeron chrysopsidis***) - leaves only 1-3 mm wide.

Indicator Value: An increaser in disturbed grassland communities. Affinity to Idaho fescue environments; very common in FEID-KOCR plant associations.

Miscellany: Only slightly used by grazing animals.

C. Johnson

Twin Arnica

Arnica sororia **ARSO**

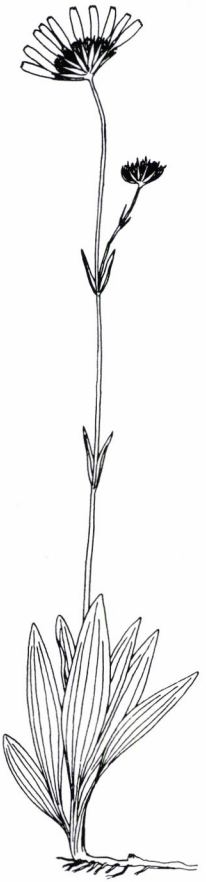
Habit: Perennial herb. Rhizomatous.

Stems: Flowering stem (8-24 inches tall); hairy and glandular.

Leaves: Basal leaves - narrowly oblanceolate or elliptic; blade (3-5 inches long) and (3/4-1 inch wide); entire; 3-5 nerved. Stem leaves - sessile; 2-4 pairs; progressively reduced upward. Leaves without hairs in axils, or hairs are white (not brown).

Flowers: Heads (1-3); ray flowers yellow (10-23); involucre hairy and glandular (May - July).

Fruit: Achene.



Wild Ginger

Asarum caudatum **ASCA3**
Family - Aristolochiaceae

Range: Mainly west of Cascades, but extending into northern Idaho and western Montana and south to northern Blue Mountains and north flank of Wallowa Mountains.

Look Alikes: The following species can be confused with wild ginger: tall bluebells (***Mertensia paniculata***) - basal leaves with nonhairy petioles; round-leaved violet (***Viola orbiculata***) - toothed leaves are 1-2 inches in diameter; pink wintergreen (***Pyrola asarifolia***) - leaves are not cordate or reniform; mitella (***Mitella* spp.**) - leaves are hairy on the upper surface.

Indicator Value: Type indicator for the grand fir/sword fern-ginger plant association.

Miscellany: Root can be eaten fresh, or can be dried and ground into a ginger substitute. Unpalatable.

C. Johnson

Wild Ginger

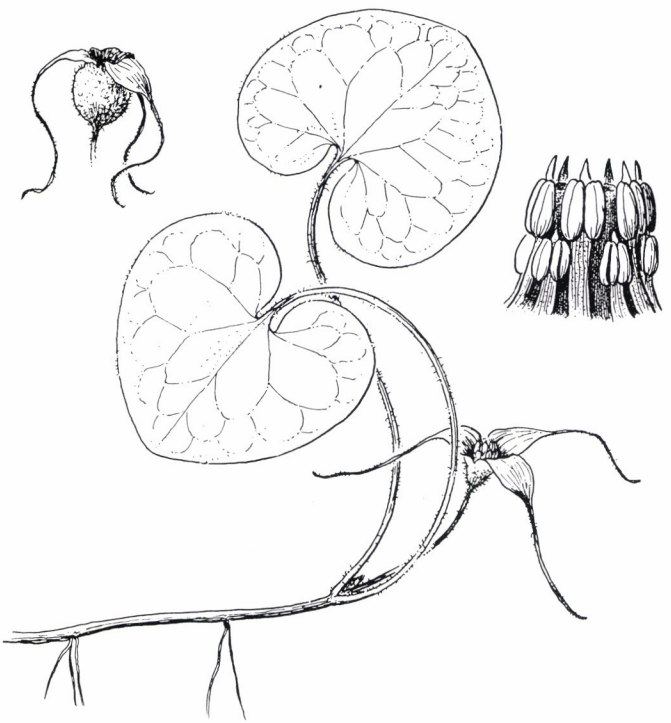
Asarum caudatum **ASCA3**

Habit: A prostrate, perennial, evergreen forb; mat-forming.

Leaves: Alternate, cordate-reniform (heart-kidney shaped), 2-4 inch diameter, long hairy petioles; dark green (ginger-like odor when crushed).

Flowers: Solitary, ascends from ground surface; brownish-purple sepals (3) from a bell-like base; no corolla (April - July).

Fruit: Fleshy 6-celled capsule.



Showy Aster

Aster conspicuus **ASCO**
Family - Compositae

Range: Northeast Oregon, central Idaho to Wyoming and northward to Canada.

Habitat: Open canopy forests at mid to low elevations on warm, dry sites.

Look Alikes: Leaves are diagnostic once learned.

Indicator Value: A good definer of the Douglas-fir zone. Also found in ABGR/SPBE plant communities. Strongly associated with OSCH, ARCO, AMAL, SYAL, and SPBE.

Miscellany: The common aster of lower elevation forests; frequently not flowering. Important elk fall and winter forage; fair for sheep.

C. Johnson

Showy Aster

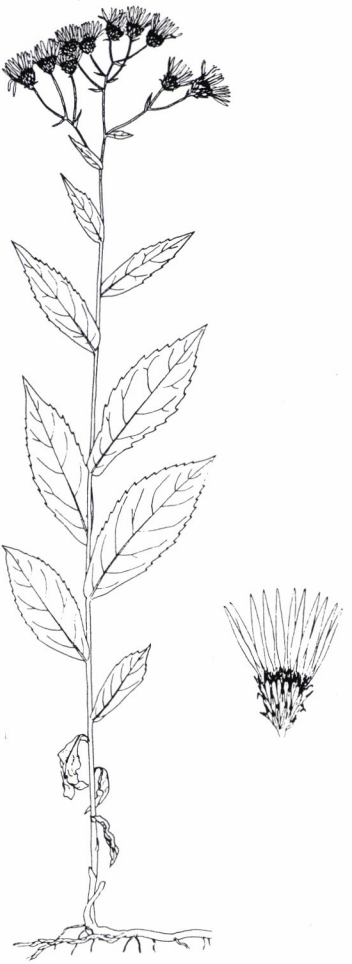
Aster conspicuus **ASCO**

Habit: Stout, rigid perennial forb; deciduous, 12-36 inches tall; rhizomatous.

Leaves: Alternate, sessile, elliptic (2-7 inches long); sharply toothed.

Flowers: Blue or violet rays; heads few to many in an open corymb - or lacking; involucre bracts acuminate, imbricated, with dense glandular hairs (July - August).

Fruits: Achene.



Canada Milkvetch

***Astragalus canadensis* (var. *mortonii*)** **ASCA7**
Family - Leguminosae

Range: British Columbia to California (east of the Cascades), east to Idaho and Montana.

Habitat: Principally in seral ponderosa pine stands at lower mountainous elevations. Thrives on warm, moist sites where fire and silvicultural disturbances have left patches in the forest mosaic.

Look Alikes: Other milkvetches (*Astragalus* spp.) tend to occur in nonforest communities. Other pinnately compound-leaved plants can be differentiated as follows: American vetch (*Vicia americana*) - tendrils on leaves (climber); peavines (*Lathyrus* spp.) - tendrils on leaves (climber).

Indicator Value: Indicative of early seral stages in forested plant associations. Especially prominent beneath seral ponderosa pine in Douglas-fir and grand fir plant associations. Also occurs in the mesic grand fir plant associations following disturbances.

Miscellany: Toxic to livestock (especially after seeds have matured).

C. Johnson

Canada Milkvetch

***Astragalus canadensis* (var. *mortonii*)** **ASCA7**

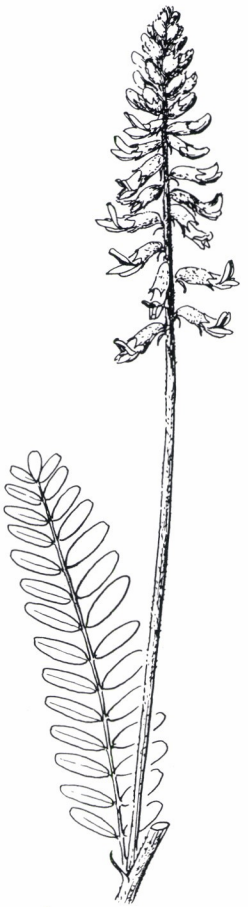
Habit: Generally reclining perennial herb (12-18 inches tall).

Stems: Glabrous or with long-spreading appressed hairs; green with lanceolate stipules.

Leaves: Pinnately compound (4-8 inches long); leaflets 13-29 (odd), lanceolate to oblong (up to 1 1/2 inches long); glabrous.

Flowers: Spikelike racemes (2-6 inches long); flowers yellow-tinged to greenish-white; wing petals, narrow, equal to banner, longer than purplish tipped keel. Calyx with white and black hairs on calyx (June - July).

Fruits: Erect, sessile pods (8-20 mm long); hairy, grooved on lower edge.



Cusick's Milkvetch

Astragalus cusickii **ASCU4**
Family - Leguminosae

Range: Endemic to our area. Snake River canyon from Weiser, Idaho to southeastern Washington including the lower Salmon River and lower Grande Ronde canyons.

Habitat: Canyon grasslands, talus, and rocky outcroppings. Affinity to metabasaltic substrates. Thrives on gravelly slopes.

Look Alikes: Differentiate from other milkvetches (***Astragalus*** **spp.**) which occur in the canyonlands as follows: Arthur's milkvetch (***A. arthuri***) - calyx 1/2 length of corolla; calyx teeth long; basalt milkvetch (***A. filipes***) - pod strongly compressed; hairy milkvetch (***A. inflexus***) - pods long hairy; flowers rose-purple; leaflets 15-29; woolly-pod milkvetch (***A. purshii***) - pods long hairy; flowers rose-purple; leaflets 7-10; Sheldon's milkvetch (***A. reventus*** var. ***sheldonii***) - pods erect in sessile spike-like inflorescense.

Indicator Value: Type indicator of bluebunch wheatgrass - Sandberg's bluegrass/Cusick's milkvetch (AGSP-POSA3/ASCU4) plant association. Not prone to increase with disturbance from overgrazing (not aggressive).

Miscellany: Toxicity to livestock unknown.

C. Johnson

Cusick's Milkvetch

Astragalus cusickii **ASCU4**

Habit: Perennial herb from a branched caudex and a woody taproot (12-24 inches tall).

Stems: Many angled and grooved.

Leaves: Pinnately compound (2-4 inches long); stipules lanceolate; leaflets 7-19 separated on the rachis; linear (up to 1 inch long).

Flowers: Raceme with 10-30 flowers on long peduncle above the leaves; petals white to yellow-white; wing petals longer than the keel; calyx (1/3 length of corolla) and covered with fine blackish hairs; calyx teeth short, triangular (May - July).

Fruits: Pod ovoid, glabrous, thin, translucent (1-2 inches long); rounded (not compound).

Hairy Milkvetch

Astragalus inflexus **ASIN2**
Family - Leguminosae

Range: Central Washington to western Montana and south to northern Oregon.

Habitat: Dry hillsides and canyon grassland communities.

Look Alikes: Very similar to wooly-pod milkvetch (***Astragalus purshii***) which has rounded to acute leaf tips; 7-10 leaflets; and a stem less than 4 inches long. Differentiate from other milkvetches (***Astragalus*** spp.) occurring in the canyons as follows: Arthur's milkvetch (***A. arthuri***) - pods not hairy; flowers white; basalt milkvetch (***A. filipes***) - pods not hairy; flowers white; Cusick's milkvetch (***A. cusickii***) - pods not hairy; flowers white to yellow-white; Sheldon's milkvetch (***A. reventus*** var. ***sheldonii***) - pods not hairy; erect on spike-like inflorescence.

Indicator Value: Commonly found on gravelly to sandy, dry sites in blue-bunch wheatgrass plant associations at lower elevations in the canyons (below 3,000 ft.). Prominent in AGSP-POSA3/PHCO2, AGSP-POSA3 (granite) and on disturbed benches and slopes where sand dropseed communities occur.

Miscellany: May be toxic to livestock.

C. Johnson

Hairy Milkvetch

Astragalus inflexus **ASIN2**

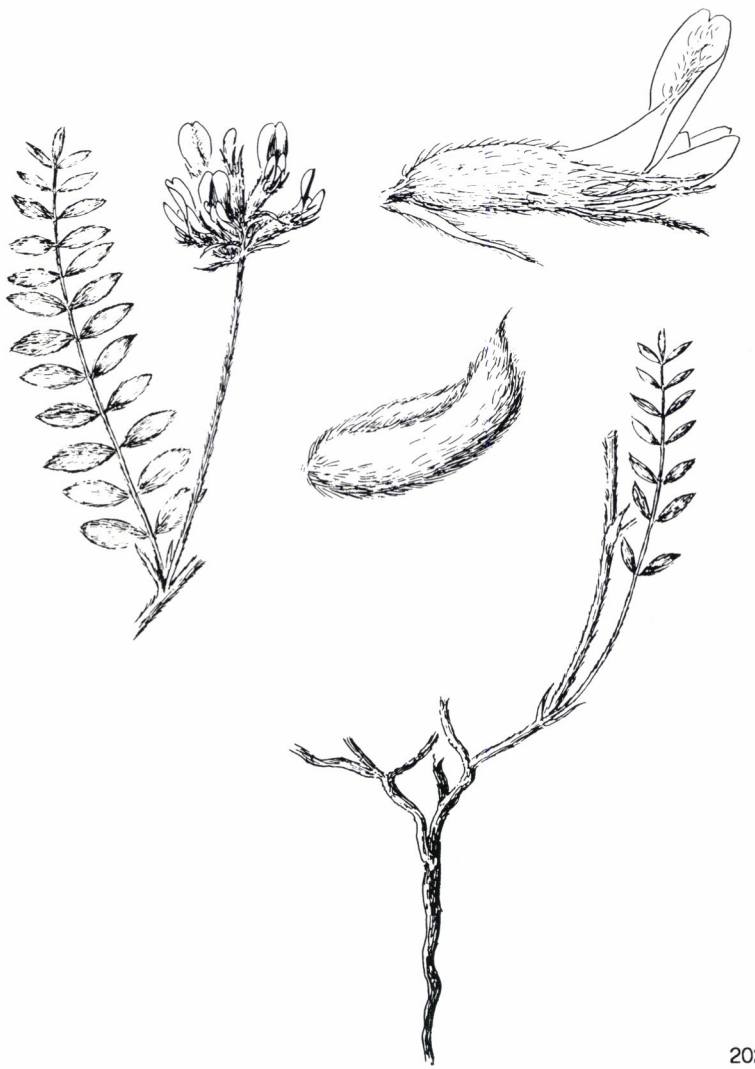
Habit: Perennial herb; prostrate to ascending, often matted.

Stems: Several arising from a branched crown off the taproot. Stems 4-20 inches long in a zigzag pattern.

Leaves: Pinnately compound (up to 6 inches long); leaflets 15-29 (elliptic - lanceolate); up to 3/4" long; hairy with acute tips.

Flowers: Raceme congested with 6-19 flowers (up to 3 inches long at fruiting); peduncles about as long as leaves; flower rose-purplish; calyx 2/3 - 3/4 length of corolla, wooly hairy; calyx teeth linear (1/2 to equal the tube); wings shorter than keel but longer than banner (April - July).

Fruits: Pods sessile, densely long hairy; arcuate and obcompressed.



Hoary Balsamroot

Balsamorhiza incana **BAIN**
Family - Compositae

Range: Southeastern Washington, northeastern Oregon, east through Idaho to northern and west central Wyoming and southeastern Montana.

Habitat: Moderately dry ridges, scablands and dry meadows at moderate elevations in the mountains and plains.

Look Alikes: Hoary balsamroot may be confused with other pinnatifid or serrated-leaved balsamroots. Toothed balsamroot (***Balsamorhiza serrata***) has silky hairy leaves which are toothed as well as pinnatifid; hairy balsamroot (***B. hirsuta***) leaves are not silky hairy, are pinnatifid, and the outer involucral bracts have an awl-shaped tip. Hooker's balsamroot (***B. hookeri***) leaves are not silky hairy, are pinnatifid, and the outer involucral bracts are not awl-tipped.

Indicator Value: The common northeast Oregon-southeast Washington dissected leaf balsamroot; serrate balsamroot replaces it in eastcentral Oregon and eastcentral Washington. Common in scabland communities of POSA3-DAUN, AGSP-POSA3, ARRI/POSA3 and ERDO/POSA3 plant associations. Also found on FEID-AGSP ridgetops.

Miscellany: Lightly used by domestic livestock (horses relish flowers). Deer and elk use leaves (especially when succulent in spring; after frost in fall). Invades on degraded deeper soil sites. Seeds used by Native Americans (roasted or ground into flour).

C. Johnson

Hoary Balsamroot

Balsamorhiza incana **BAIN**

Habit: Perennial herb from a single crown off a carrotlike taproot.

Stems: Reduced pinnatifid leaves on flowering stalk (6-18 inches tall); silky hairy.

Leaves: Deeply dissected (appears pinnate); up to 18 inches long; entire margins; coarsely toothed; silky with long, soft, tangled hairs (hairs deciduous as summer season advances).

Flowers: Large solitary heads with yellow rays (generally 12-13); approx. 2-2 1/2 inches in diameter; involucre woolly hairy (late May - June).

Fruits: Glabrous achene.

Arrowleaf Balsamroot

Balsamorhiza sagittata **BASA**
Family - Compositae

Range: Southern British Columbia to southern California on both sides of the Cascades and Sierras; east to Montana, South Dakota (Black Hills) and Colorado. Found throughout much of the arid western United States.

Habitat: Hillsides, prairies, valleys in well drained deep soils (good bunchgrass sites). Also extends into the lower montane forests (especially under ponderosa pine and Douglas-fir in open growing stand conditions).

Look Alikes: A very distinctive plant which is often confused with another large showy yellow composite - mules ears (***Wyethia amplexicaulis***). Mules ears has glossy basal leaves that are oblong rather than heart or arrowhead-shaped. Other balsamroots have pinnatified leaves. In central Oregon and central Washington Carey's balsamroot (***Balsamorhiza carreyana***) is less hairy with nonwooly involucre (otherwise it is very similar in appearance).

Indicator Value: An increaser from overgrazing (especially from cattle use). Used as indicator of range readiness by range managers when flowers develop. Prominent in grassland communities (i.e., FEID-KOCR, FEID-AGSP, AGSP-POSA3) and beneath dry site shrubs (i.e., bitterbrush, snowberries, mountain-mahogany).

Miscellany: The name comes from the aroma of the root. The most widespread of the balsamroots. Rapid responder to fire - resistant due to the woody caudex. Following fire in degraded bunchgrass communities, arrowleaf balsamroot increases due to increased vigor and vitality (a prolific seed provider in 2nd year after a fire). Very competitive in bunchgrass due to deep taproot giving moisture availability advantage. Valuable forage for domestic sheep, bighorn sheep, deer and elk; especially in spring when leaves are succulent. Horses like the flowers. The entire plant is edible for humans - roots can be cooked; springtime use of shoots and leaves in salads (or boiled); seeds roasted and ground into flour. Nez Perce peeled flower stalks (prior to bloom) and used like "celery"; they mixed ground seeds with fat into balls.

C. Johnson

Arrowleaf Balsamroot

Balsamorhiza sagittata **BASA**

Habit: Perennial herb from a branched caudex off a deep, woody taproot (8-32 inches tall).

Stems: Erect, hairy (8-32 inches tall).

Leaves: Basal clump with long petioles; arrowhead-shaped to heart-shaped leaves; up to 12 inches long, entire margins; silvery hairy beneath of short, fine hairs.

Flowers: Showy (disk and rays a brilliant yellow); solitary heads with 8-25 rays (2-3 inches in diameter); involucre with outer bracts longer than inner ones - densely white hairy to woolly (April - July).

Fruits: Glabrous achene.

Common Camas

Camassia quamash **CAQU**
Family - Liliaceae

Range: British Columbia south to California (on both sides of Cascades); east to southwest Alberta, Montana, Wyoming and Utah.

Habitat: Moist seepages (drying by late spring); moist meadows.

Look Alikes: Cusick's camas (***Camassia cusickii***), an endemic to north-east Oregon, is more robust, has more than 10 leaves per plant, and has foul-odored bulbs (2-4 inches long). Death camas (***Zigadenus* spp.**) flowers are green-white, white or cream colored with a yellowish or greenish spot at base of the tepal. Bulbs of death camas are poisonous.

Indicator Value: Defines seepages, moist vernal depressions and moist meadows where spring moisture is abundant; ephemeral as summer drought occurs.

Miscellany: The species name "quamash" derived from Lewis & Clark's efforts to write the Native American word for the plant. Lewis wrote of the deception caused by the many blue flowers in meadows seeming to be lakes "of fine clear water." The most important root used by the Nez Perce. Dug from July to September after tops dried. Indians bent stems of the blue camas plants at flowering time, to avoid white flowering death camas plants when they returned in late summer to dig the bent-stem plants after the flowers had dried. Bulbs steamed in pit ovens for up to 3 days were dried, ground into flour; used for cakes or porridge.

C. Johnson

Common Camas

Camassia quamash **CAQU**

Habit: Bulbous perennial. Bulb about 1 1/2 inches long and 1 inch wide. Dark bulb coat surrounds the white bulb.

Stems: Scapose (leafless - bearing the inflorescence); 8-28 inches tall.

Leaves: Few (less than 10 per plant), entire, basal, linear, shorter than the scape; width (8-20 mm).

Flowers: Raceme of few to many flowers (4-10 inches long); tepals dark purplish-blue to light blue; tepals (6) with 6 stamens opposite; stigmas 3; anthers yellow to blue (April - June).

Fruits: Capsule (ovoid).

Bull Thistle

Cirsium vulgare **CIVU**
Family - Compositae

Range: Widely naturalized in the Pacific Northwest.

Habitat: A pioneering invader on highly disturbed sites (skid trails, landings, roadcuts, clearcuts) in mid elevation forested communities.

Look Alikes: In the vegetative state, thistles are difficult to identify. Use the spiny-winged strip on the stem in between the leaves as an indentifying feature for bull thistle when not in flower.

Indicator Value: Indicates severe disturbance following modification of understory in grand fir series forested communities. Likes deep, ashy soils.

Miscellany: Not a noxious weed - pioneers and is replaced in succession. Floral heads are extremely palatable to cattle and elk. Stems may be peeled and cooked with roots. "Down" from seed pappus makes good fire building tinder.

C. Johnson

Bull Thistle

Cirsium vulgare **CIVU**

Habit: Stout biennial forb up to four feet tall.

Stems: Conspicuously spiny-winged from leaf bases.

Leaves: Alternate, long, deeply incised pinnate lobes with spiny tips; hairy above and white woolly to hairy below.

Flowers: Purple to rosy heads with spiny-tipped involucre bracts (July - September).

Fruits: Achene with silky pappus.

Clarkia, Pink Fairies

Clarkia pulchella **CLPU**
Family - Onagraceae

Range: Southern British Columbia south through eastern Washington and eastern Oregon; east to Idaho and western Montana.

Habitat: Dry to moist bunchgrass communities. Thrives on colluvial slopes where trailing stuff provides ready habitat. In moist seasons bunchgrass slopes are given a pinkish cast by the profusion of the flowers.

Look Alikes: Clarkia (*Clarkia pulchella*) is very distinctive in flower. Common clarkia (*C. rhomboidea*) has 8 fertile stamens with petals that are not 3-lobed. Fireweeds (*Epilobium* spp.) are more robust with each flower borne on a stalk, and seeds with silky hairs.

Indicator Value: Opportunistic. Increases on steep, colluvial slopes. Common between bunchgrasses in FEID-AGSP, AGSP-POSA3 plant associations; beneath bitterbrush, juniper, mountain snowberry and ninebark shrubland plant associations. A dramatic patch-former on FEID-KOCR mounds where pocket gophers and livestock have disturbed the deep soils.

Miscellany: The genus named for Capt. William Clark of Lewis & Clark Expedition. The species name "pulchella" means "beautiful" - an appropriate name for this lavender flower.

C. Johnson

Clarkia, Pink Fairies

Clarkia pulchella **CLPU**

Habit: Simple to freely branched annual forb (6-20 inches tall).

Leaves: Linear to spatulate, entire (1-3 inches long).

Flowers: Racemes (few flowered); lavender hypanthium; calyx lobes lavender; petals rose-purple, 3-lobed (up to 1 inch long); 4 fertile stamens; stigmas oval-oblong with 4 broad, white lobes (May - June).

Fruits: Elongate capsule (straight to curved).

Queen's Cup, Beadlily

Clintonia uniflora **CLUN**
Family - Liliaceae

Range: Throughout the Pacific Northwest.

Habitat: Cool, moist forests.

Look Alikes: Queen's cup leaves may be confused when the plant is not in flower. The leaves of dogtooth violets (***Erythronium grandiflorum***) and bog orchids (***Habenaria*** **spp.**) are succulent and nonhairy.

Indicator Value: Indicates the most highly producing forested sites in Blue and Wallowa Mountains; defines ABLA2/CLUN, ABGR/CLUN, ABGR/TABR/CLUN plant associations.

Miscellany: The blue berry may be toxic. The plant is unpalatable. Grouse relish the fruit. The specific name "uniflora" means one-flowered.

C. Johnson

Queen's Cup, Beadlily

Clintonia uniflora **CLUN**

Habit: Low (up to 6 inches tall) rhizomatous, perennial forb; deciduous, but green until late frosts.

Leaves: Two-three basal, strap-like, oblong (up to 6 inches long) leaves with entire margins; green and glabrous above; long silvery hairs beneath and on margins of leaves.

Flowers: White, solitary, showy, 3/4-1 inch wide, bell-shaped (June - July).

Fruits: Solitary, deep lustrous blue berry.

Goldthread

Coptis occidentalis **COOC2**

Family - Ranunculaceae

Range: Northeastern Washington, northern Idaho and western Montana, southward sporadically into northeastern Oregon and adjacent central Idaho.

Habitat: Moist, warm to moist, cool environments beneath true firs.

Look Alikes: When not in flower or fruit, the leaves of goldthread may be mistaken for Piper's anemone (***Anemone piperi***). Anemone leaflets are more acute, not shiny, and are deciduous.

Indicator Value: Defines the ABGR/COOC2 plant association.

Miscellany: Golden-yellow rhizomes give goldthread its common name.

C. Johnson

Goldthread

Coptis occidentalis **COOC2**

Habit: Low (4-8 inches tall), perennial evergreen forb; rhizomatous (golden-yellow).

Leaves: Basal, shiny-leathery, trifoliate with ovate leaflets (1-2 inches long), sharply serrated margins.

Flowers: White, 5 to 7 petaled, borne on naked scapes (April - May).

Fruit: Follicle.

Brittle Bladderfern

Cystopteris fragilis **CYFR**
Family - Polypodiaceae

Range: Common in the Pacific Northwest.

Habitat: Moist to somewhat dry, rocky outcroppings shaded by forest canopies at low to mid elevations.

Look Alikes: Brittle bladderfern can be differentiated from the following ferns: Lady fern (***Athyrium filix-femina***) is a large plant with crescent-shaped indusium; male fern (***Dryopteris filix-mas***) is a large plant with horseshoe-shaped indusium; woodsia (***Woodsia oregana***) does not have a vase-like shape and has plate-like indusium.

Indicator Value: Defines Douglas-fir steep slope plant associations (PSME/PHMA and PSME/ACGL-PHMA).

Miscellany: The common name comes from the brittleness of the leaf-stalks and the shape of the indusium.

C. Johnson

Brittle Bladderfern

Cystopteris fragilis **CYFR**

Habit: Small, delicate, perennial fern with vase-like form.

Leaves: Deciduous, glabrous; blade 10" x 14" (avg); 8-18 leaflets.

Sort: Cuplike indusium from a veinlet.

Hooker's Fairybells

Disporum hookeri **DIHO**
Family - Liliaceae

Range: British Columbia south on both sides of the Cascades to northwestern Oregon; Alberta south in northern and west central Idaho, western Montana, southeastern Washington.

Habitat: Moist, cool forests dominated by grand fir at low to moderate elevations.

Look Alikes: Hooker's fairybells can be differentiated from the following similar plants: Western false Solomon's seal (***Smilacina racemosa***) is unbranched with numerous flowers in a panicle; starry false Solomon's seal (***Smilacina stellata***) is unbranched with a raceme of 5-10 flowers; twisted stalk (***Streptopus amplexifolius***) is branched with 1-2 flowers at each leaf axil; wartberry fairybells (***Disporum trachycarpum***) is branched and has "bumpy" yellow-red to orange fruits.

Indicator Value: Commonly found in the moist grand fir forests. Indicator for grand fir/oakfern (ABGR/GYDR) and grand fir/sword fern - ginger (ABGR/POMU-ASCA3) plant associations.

Miscellany: Plant unpalatable. Fruits used by spruce grouse and small rodents. Fruits generally inedible.

C. Johnson

Hooker's Fairybells

Disporum hookeri **DIHO**

Habit: Perennial forb up to 3 feet tall. Rhizomatous.

Stems: Branched sparingly, hairy, brownish to purplish.

Leaves: Alternate, simple, entire, paralleled veined ovate to elliptic (2-6 inches long); oblique at base; glabrous above, hairy beneath; short hairs on leaf margin.

Flowers: 2-3 borne terminally, drooping; bell-shaped; creamy white (9-18 mm long) (April - July).

Fruits: Red berry (elliptical to ovoid); smooth to slightly hairy; 7-9 mm long; 4-6 seeded.

Wartberry Fairybells

Disporum trachycarpum **DITR**
Family - Liliaceae

Range: Central and eastern Washington, Blue and Wallowa Mountains of Oregon, and the Rocky Mountains.

Habitat: Warm, moist mid to low elevation sites usually under closed canopies in the grand fir zone.

Look Alikes: Differentiate from the following similar plants as follows: Western false Solomn's seal (***Smilacina racemosa***) is unbranched with numerous flowers; starry false Solomon's seal (***Smilacina stellata***) is unbranched with a raceme of 5 to 10 flowers; twisted stalk (***Streptopus amplexifolius***) is branched with green, clasping leaf bases.

Indicator Value: Defines the grand fir series plant associations and the moist sites in PSME/PHMA and PSME/ACGL-PHMA.

Miscellany: Mixed reviews on edibility of the berry. Blackfoot Indians apparently ate them raw. Grouse use the fruits. Plant is unpalatable to livestock.

C. Johnson

Wartberry Fairybells

Disporum trachycarpum **DITR**

Habit: Deciduous, perennial, mid-sized forb (12-24 inches tall); branched; rhizomatous.

Stems: Branched; brownish to purplish; pubescent.

Leaves: Alternate, ovate with acuminate tips, 2-5 inches long; sessile; veins prominent; glabrous above, hairy below; ciliate leaf margins.

Flowers: Creamy white, bell-shaped; 1-2 pedicelled terminally (May - July).

Fruits: Green to orange to red glabrous; "bumpy" rounded berry.

Dwarf Yellow Fleabane

Erigeron chrysopsidis **ERCH**
Family - Compositae

Range: Southeastern Washington to northern California; Snake River Plains in Idaho (***Erigeron chrysopsidis* var. *brevifolius*** - an endemic to high elevations in Wallowa Mountains).

Habitat: Dry, sandy to gravelly grasslands, scablands and shrublands (***E. chrysopsidis* var. *brevifolius*** - rocky exposures, slides, slopes in subalpine and alpine).

Look Alikes: Yellow woolly daisy (***Eriophyllum lanatum***) - involucral bracts in one series, all equal; leaves lobed, pinnatifid; desert yellow daisy (***Erigeron linearis***) - stem and leaf hairs few to appressed; plant gray-green. Woolly goldenweed (***Haplopappus lanuginosus***) - leaves with long, tangled soft hairs; lanceolate involucral bracts.

Indicator Value: The scabland fleabane of eastern Oregon and southeastern Washington. Common in POSA3-DAUN, ARRI/POSA3; ERST2/POSA3 scablands. Also prominent in dry canyon shrublands (i.e., GLNE/AGSP, CERE2/AGSP). The variety ***brevifolius*** is restricted to subalpine fir, whitebark pine and alpine cushion plant communities in the Wallowa Mountains.

C. Johnson

Dwarf Yellow Fleabane

Erigeron chrysopsidis **ERCH**

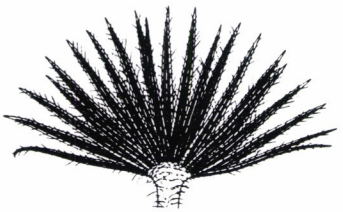
Habit: Perennial forb. Taproot off a branched caudex (1-6 inches tall).

Stems: Closely tufted with spreading hairs.

Leaves: Basal; linear-oblanceolate, narrow (1-3 mm wide) (up to 3 1/2 inches long); spreading hairs.

Flowers: Solitary heads; involucre hemispheric, hairy and slightly glandular; rays - yellow (up to 10 mm long); linear involucral bracts in 2 series (unequal - outer longer than inner) (May - August).

Fruits: Achene.



Subalpine Daisy

Erigeron peregrinus **ERPE**
Family - Compositae

Range: British Columbia to Alberta in the Rockies; south in the mountains to California, Utah, New Mexico.

Habitat: Moist meadows, streamsides, open forest at moderate to high elevations in the mountains.

Look Alikes: Resembles an aster. Asters (***Aster*** **spp.**) have leafy involucral bracts which are unequal, overlapping. Daisies (***Erigeron*** **spp.**) have non-leafy involucral bracts which are equal in a series or row. Eaton's daisy (***E. eatonii***) - rays white to light blue; rays narrower; showy daisy (***E. speciosus***) - stem leaves numerous; basal leaves few; rays blue.

Indicator Value: The common daisy of the subalpine in the inland Pacific Northwest. Found in subalpine fir and whitebark pine plant communities; alpine meadow communities. Increases with surface disturbance on lake shores and beneath trees where animals and people trample the ground. Increaser from overgrazing in meadows.

K. Urban

Subalpine Daisy

Erigeron peregrinus **ERPE**

Habit: Perennial forb (up to 28 inches tall); fibrous rooted from a short rhizome.

Stems: Leafy to leafless (8-28 inches tall).

Leaves: Basal leaves simple, entire, oblanceolate on petiole; cauline leaves reduced progressively upward, ovate to linear, usually clasping.

Flowers: Heads (solitary or few); disk flowers yellow (10-25 mm wide); ray flowers (30-80) purple to rose-purple (8-25 mm long) (July - August).

Fruits: Achene (5 nerved).

Shaggy Fleabane

Erigeron pumilus **ERPU**
Family - Compositae

Range: British Columbia to Saskatchewan south to Kansas in the plains; south in Rockies to northern Arizona; south in Cascades to southern California.

Habitat: Dry, open sandy and rocky foothills, valleys, mountain ridges and plains.

Look Alikes: Resembles other blue daisies. Eaton's daisy (***Erigeron eatonii***) - rays white to light blue; heads few to 1 per flowering stem; foothill daisy (***E. corymbosus***) - basal leaves triple-nerved.

Indicator Value: The common blue daisy of the grasslands. Especially suited to the dry, hot habitats of bluebunch wheatgrass - Sandberg's bluegrass plant associations. Common in AGSP-POSA3 (ASCU4, PHCO2, OPPO) plant associations. Type indicator of AGSP-POSA3/ERPU plant association. Increaser in sand dropseed bench communities.

C. Johnson

Shaggy Fleabane

Erigeron pumilus **ERPU**

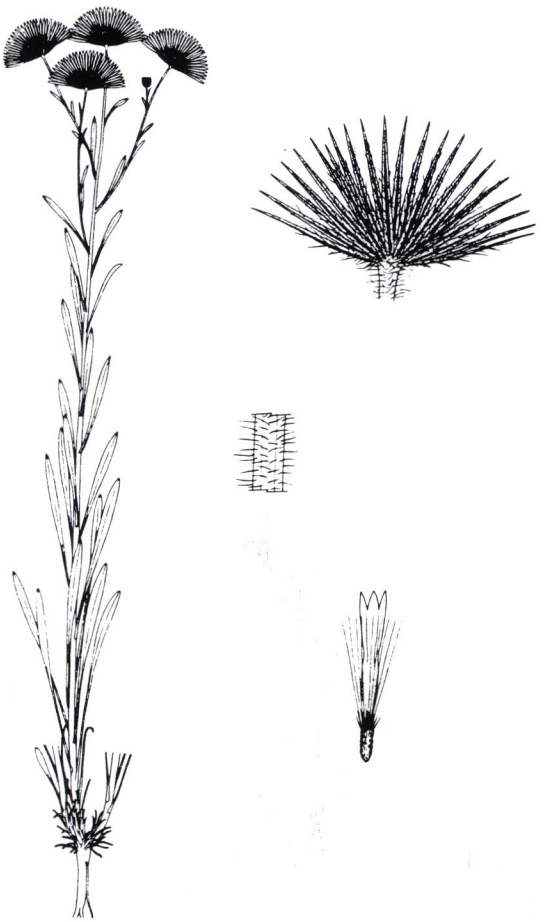
Habit: Perennial forb from a taproot and caudex (2-20 inches tall).

Stems: Usually much branched; covered with copiously spreading hairs (often somewhat glandular).

Leaves: Alternate, entire, oblanceolate to linear - oblanceolate (up to 3 inches long); both cauline and basal; covered with spreading hairs; basal leaves not 3-nerved.

Flowers: Flowering stems many, with multiple heads per stem. Hemispheric head with 50-100 blue to pink rays (6-15 mm long); involucre spreading hairy to glandular (May - July).

Fruits: Hairy achenes.



Yellow Buckwheat

Eriogonum flavum **ERFL**
Family - Polygonaceae

Range: British Columbia to southern Alberta southward east of the Cascades through eastern Washington, northeast Oregon, south central Idaho to Colorado.

Habitat: Open, dry ridges in grasslands to alpine ridges.

Look Alikes: Other buckwheats which may be confused with golden buckwheat are: heart-leaved buckwheat (***Eriogonum compositum***) - leaves triangular or heart-shaped; golden buckwheat (*E. chrysops*) and cushion buckwheat (*E. caespitosum*) have inflorescences in head-like clusters; sulfer buckwheat (*E. umbellatum*) - leaves short petioled (up to 1 1/2 inches long).

Indicator Value: Especially prominent in higher elevation communities (subalpine Idaho fescue and green fescue). Common in mountain big sagebrush/elk sedge and Idaho fescue - Hood's sedge plant communities.

Miscellany: The flower heads are grazed by mountain sheep, mountain goats, elk, deer and horses. Blue grouse eat the foliage.

C. Johnson

Yellow Buckwheat

Eriogonum flavum **ERFL**

Habit: Caespitose perennial; prostrate to ascending from a branched crown and a stout woody taproot; matforming.

Stems: Grayish hairy with tangled woolly hairs.

Leaves: Subglabrous; green above, white or gray hairy beneath; crowded; linear, entire (1-4 inches long); elliptic to oblanceolate; on long petioles.

Flowers: Scape with a simple umbel; rays up to 1 inch long; subtended by 4-6 leaflike bracts. Involucres densely hairy; flowers yellow, sometimes tinged pink to red, long hairy. Stipe at base (late June - August).

Fruits: Pubescent achene.

Creamy Buckwheat

Eriogonum heracleoides **ERHE**
Family - Polygonaceae

Range: British Columbia southward on east side of Cascades to northeast California; east to western Montana, Wyoming, Utah and Nevada.

Habitat: Dry, rocky, gravelly slopes and ridges in sagebrush desert, grasslands, ponderosa pine forests to rocky montane ridges at about 7,000 ft. Not a scabland dweller - requires deep soils.

Look Alikes: Creamy buckwheat may be confused with other white flowered buckwheats having a mid whorl on the flowing stalk. Thyme-leaf buckwheat (***Eriogonum thymoides***) - flowering stem less than 4 inches tall; 1 involucre; Douglas' buckwheat (***E. douglasii***) - flowering stem less than 4 inches tall.

Indicator Value: Type indicator for AGSP/ERHE plant association. Common in subalpine Idaho fescue, FEID-KOCR, FEID-AGSP grasslands; PUTR, CELE, SYOR, ARTRV shrublands; and PIPO/CELE/FEID-AGSP and PIPO/ARTRV/FEID-AGSP forests. Increases with overgrazing - forming large mats over ridgetops and slopes on deep soils.

Miscellany: Seeds used by chipmunks and mice. Grazed by domestic sheep, deer and elk.

C. Johnson

Creamy Buckwheat

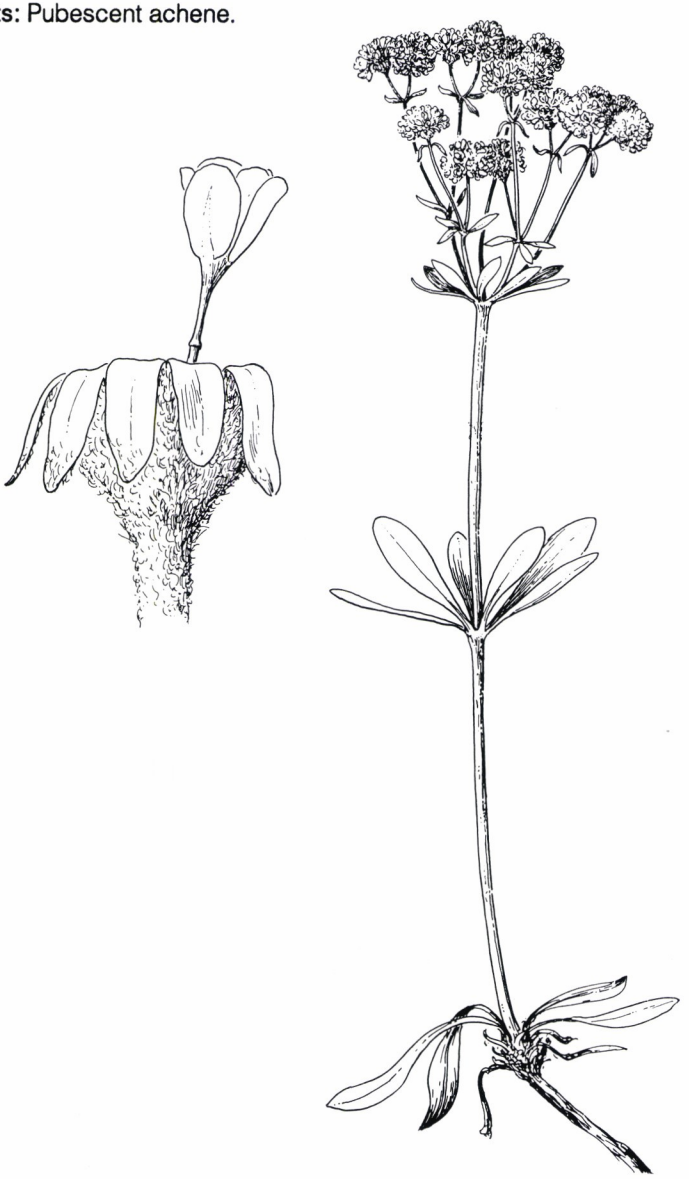
Eriogonum heracleoides **ERHE**

Habit: Freely branched perennial forb from a woody base; forms large clumps.

Leaves: Linear to oblanceolate (1-3 inches long); dense gray hairy beneath; greenish above.

Flowers: Flower stalk (4-28 inches tall) with mid whorl of leafy bracts at mid length; umbrella-like compound umbel subtended by leaf-like bracts; involucres woolly; flowers white to creamy (sometimes rose-tinted before opening); stipe at base of perianth (May - July).

Fruits: Pubescent achene.



Strict Buckwheat

***Eriogonum strictum* (ssp. *strictum*)** **ERST2**
Family - Polygonaceae

Range: Northern Washington on east side of Cascades south to northern California; east to Idaho, Montana and northern Nevada.

Habitat: Dry, rocky soils from sagebrush desert and canyon grasslands to open ridgetops in the mountains.

Look Alikes: Strict buckwheat may be confused with other white flowered buckwheats. Snow buckwheat (***Eriogonum niveum***) - leafy bracts at forks of inflorescence. Differentiate proliferous buckwheat (***E. strictum*** var. ***proliferum***) from strict buckwheat on the congested inflorescence, stouter involucre branches, and leaves with gray hairs on both surfaces.

Indicator Value: Strict buckwheat (***E. strictum*** var. ***strictum***) is type indicator for the strict buckwheat/Sandberg's bluegrass plant community growing on thin soil scablands and rocky outcrops. Proliferous buckwheat (***E. strictum*** var. ***proliferum***) occurs in the canyons of Snake River System in northeast Oregon, southeast Washington and adjacent Idaho on deeper soil, dry sites (i.e., AGSP-POSA3 granite).

C. Johnson

Strict Buckwheat

***Eriogonum strictum* (ssp. *strictum*)** **ERST2**

Habit: Perennial, mat-forming; prostrate to ascending.

Stems: Woody (up to 4 inches long).

Leaves: Basal, entire, elliptic to ovate (5-25 mm long) on petiole as long (to 4 times as long) as leaf; gray hairy on underside; sparsely hairy to green on upper side.

Flowers: Flowering stem 4-16 inches tall; leafless; densely hairy; open umbellate inflorescence; involucres headlike with linear bracts; perianth glabrous with white, creamy to pinkish flowers; no stipe at base (late May - July).

Fruits: Glabrous achene.

Woods Strawberry

Fragaria vesca **FRVE**
Family - Rosaceae

Range: Widespread in North America.

Habitat: Wide ecologic range; moist, cool subalpine fir communities to warm, dry ponderosa pine-dominated stands. Greatest abundance is in early seral vegetation.

Look Alikes: Most easily confused with broadpetal strawberry (*Fragaria virginiana*) - bluish-green, veins not prominent, surface of leaf not bulged.

Indicator Value: Indicative of open, warm, sun-filled portions of stands; early seral stages. Increases with skidding and grazing disturbance.

Miscellany: Common name "strawberry" came from practice of placing straw about plants to keep fruit from contact with soil. Fruits are "bursting" with flavor and sweetness. Teas from leaves are full of Vitamin C. Wildlife are big users of fruits. Introduced from Europe in 1700's.

C. Johnson

Woods Strawberry

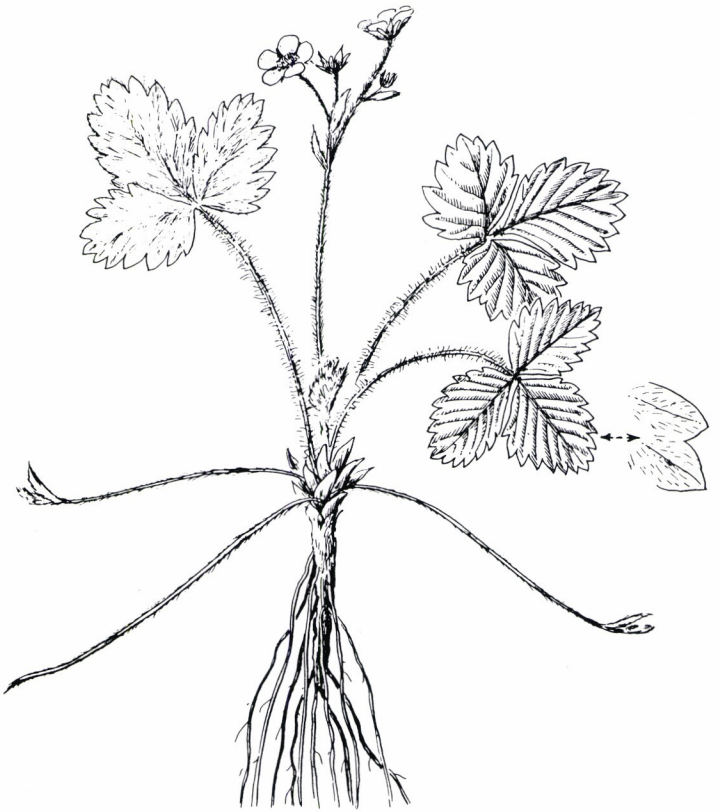
Fragaria vesca **FRVE**

Habit: Deciduous, perennial forb; strongly stoloniferous.

Leaves: Long petiolate basal leaves; trifoliate leaflets; yellow-green; upper surface bulged between veins; coarsely serrate margins.

Flowers: White, showy, 5-merous; 3 to 11 flowered cyme (April - June).

Fruits: Red, edible, mouth-watering, globose 3/8-inch berry.



Broadpetal Strawberry

Fragaria virginiana **FRVI**
Family - Rosaceae

Range: Widespread in North America.

Habitat: Warm, dry sunny portions of forested stands at mid and low elevations.

Look Alikes: Most easily confused with woods strawberry (*Fragaria vesca*) - yellow-green, veins prominent, surface of leaf bulges.

Indicator Value: More restricted than *F. vesca*. Occurs in early seral lodgepole pine communities of cool, moist true fir plant associations. Common in ABGR/SPBE and warm, dry PSME and PIPO plant associations. Increases with skidding and grazing disturbance.

Miscellany: Discovered by early colonists on east coast and introduced to Europe as a superior-sized and sweeter berry. Teas from leaves high in Vitamin C. Wildlife use fruits; flavorful and sweet eaten raw, cooked in cobblers, and made into jams.

C. Johnson

Broadpetal Strawberry

Fragaria virginiana **FRVI**

Habit: Deciduous, perennial forb; strongly stoloniferous.

Leaves: Long petiolate basal leaves; trifoliate leaflets; bluish-green; not prominently veined or bulged; coarsely serrate margins.

Flowers: White, showy, 5-merous; 2-15 flowered cyme (May - August).

Fruit: Globose 3/8-inch berry; red, edible, invigorates taste buds.

Sweetscented Bedstraw

Galium triflorum **GATR**
Family - Rubiaceae

Range: Circumboreal; throughout Pacific Northwest.

Habitat: Cool, moist forested communities at mid to high elevations.

Look Alikes: Differentiate from other bedstraws as follows: northern bedstraw (*Galium boreale*) - perennial, many flowered, four leaves per whorl; cleavers (*G. aparine*) - annual, several flowered, 6 to 8 leaves per whorl.

Indicator Value: Indicates grand fir series plant associations and cool, moist sites in PSME/PHMA communities.

Miscellany: Roasted and ground seeds are coffee substitute. Purple dye from roots. Common name "bedstraw" from use of plant in mattress ticking. The specific name "triflorum" refers to three-flowered inflorescences.

C. Johnson

Sweetscented Bedstraw

Galium triflorum **GATR**

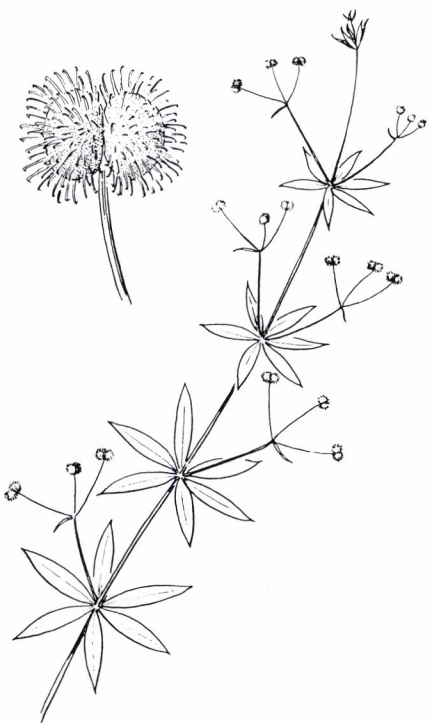
Habit: Deciduous, perennial trailing forb; creeping rhizomes.

Stem: Square; retrorse hairs on angled edge - or glabrous.

Leaves: Sessile in whorls of 6; elliptic, entire (up to 2 inches long).

Flowers: Small, white; 4-merous; borne in threes from peduncles at leaf axils (June - August).

Fruit: Capsule covered with hooked bristles.



Red Avens, Old Man's Whiskers

Geum triflorum **GETR**
Family - Rosaceae

Range: British Columbia southward on east side of Cascades to Sierras of California; eastward to New York; south in the Rockies to Nevada, Utah and New Mexico.

Habitat: Meadows, moist grasslands, moist areas in sagebrush plains and lower foothills to subalpine ridges.

Look Alikes: The only *Geum* with opposite stem leaves at mid length. Geranium leaves may appear similar but are glabrous. Some potentilla leaves may appear similar but are not wider near the tip nor tapering to the base as are red avens leaves.

Indicator Value: An increaser in moist, deep soil, Idaho fescue grasslands. A common plant in FEID-KOCR (ridgetops and mounds), mountain snowberry mound, ninebark shrubland and mountain big sagebrush/Idaho fescue communities.

Miscellany: Native Americans boiled roots to make a tea.

C. Johnson

Red Avens, Old Man's Whiskers

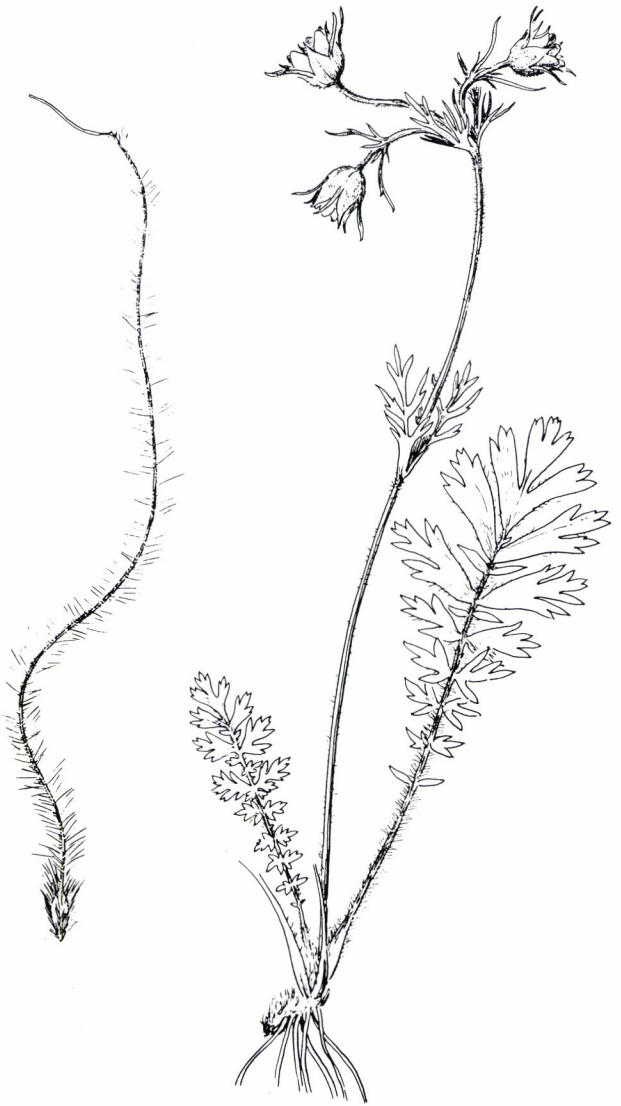
Geum triflorum **GETR**

Habit: Perennial forb from thick, scaly rootstuck covered with old leaf bases. Clump-forming; 12-20 inches tall.

Leaves: Basal; blades (2-6 inches long); obovate; pinnate to pinnatifid, unequal; grayish with long hairs.

Flowers: Flowery stem up to 12 inches tall with reduced opposite leaves in whorl at mid length; cyme with nodding flowers (usually in 3's); calyx reddish purple to pink; petals white, yellow to pinkish or purplish-red (hidden behind bracteoles of the calyx); style strongly featherlike (April - July).

Fruits: Achene with long feathery style ("old man's whiskers").



Rattlesnake Plantain

Goodyera oblongifolia **GOOB**
Family - Orchidaceae

Range: Western and northern United States.

Habitat: Warm, moist to cool, moist forested sites in true fir series vegetation; tends to occupy needle-littered surfaces beneath dark, closed tree overstories.

Look Alikes: Readily recognized.

Indicator Value: Commonly found in later seral true fir plant communities associated with VAME, LIBO2, CLUN, and in moist, cool sites of PSME/PHMA stands.

Miscellany: Yes, this really is an orchid! The spikelike inflorescence resembles rattles on a rattlesnake. Plant is nonpalatable.

C. Johnson

Rattlesnake Plantain

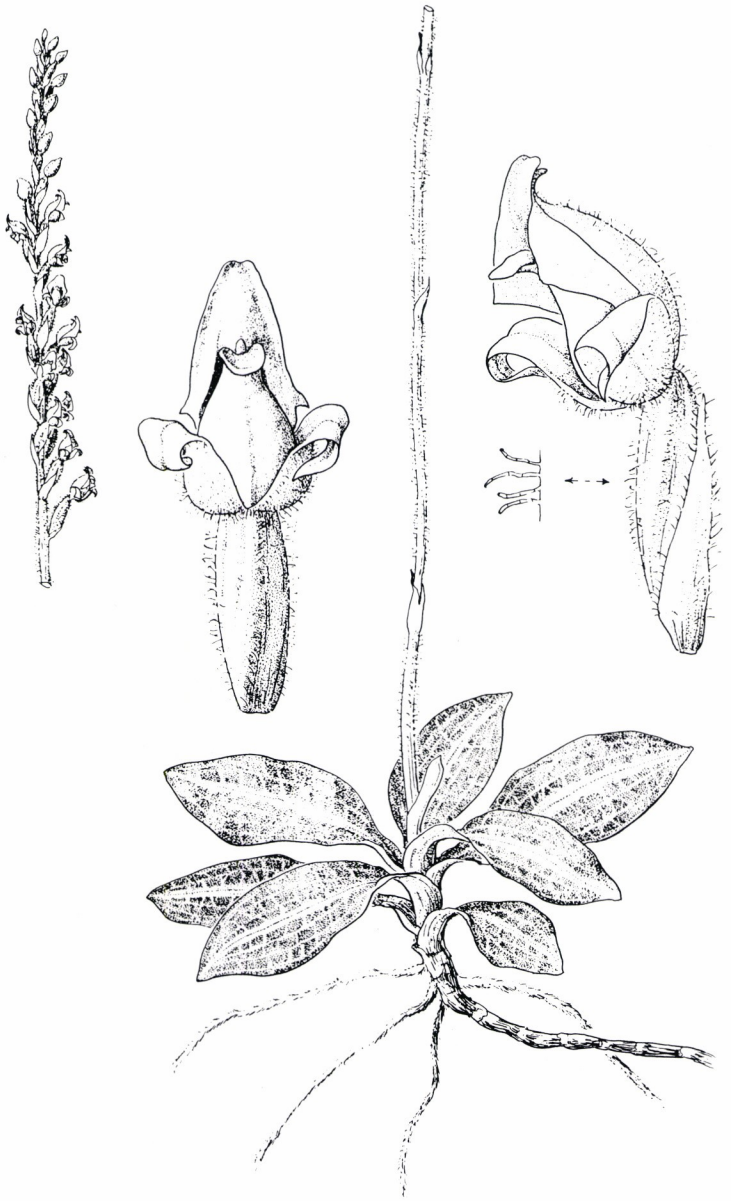
Goodyera oblongifolia **GOOB**

Habit: Perennial, evergreen forb up to 12 inches tall; short rhizomes.

Leaves: Basal rosette; thick, entire, elliptic-lanceolate (1-3 inches long); white stripe along midrib.

Flowers: Small, inconspicuous, green, hooded, 3-merous; borne in spike (4 inches long) (July - August).

Fruit: Capsule.



Low Gumweed

Grindelia nana **GRNA**
Family - Compositae

Range: Eastern Washington, eastern Oregon, adjacent Idaho to western Montana.

Habitat: Dry, open ridgetops, grassy slopes and open forests of low montane.

Look Alikes: Very distinctive with resinous leaves and involucres. May be confused with golden asters (***Chrysopsis*** spp.) - which have entire leaves; nonresinous. Golden weed (***Haplopappus carthamoides***) has no ray flowers.

Indicator Value: Indicator of depleted grasslands where most of topsoil has been lost to erosion from overgrazing. Common on old sheep driveways. Prevalent where Idaho fescue was once dominant (FEID-KOCR ridgetops, scablands now dominated by AGSP-POSA3 where FEID once grew in deeper soils, ARTRV/FEID plant association in early and very early seral stages).

Miscellany: Increases with drought. Seldom used by livestock or wildlife. Native Americans used sticky secretions for relief of asthma, bronchitis and colic; extracted today for medicinal use of whooping cough and asthma. Leaves can be chewed; made into a tea. A poultice from leaves relieves itching.

C. Johnson

Low Gumweed

Grindelia nana **GRNA**

Habit: Perennial forb branched from a caudex and taproot.

Stems: Glabrous (4-32 inches tall).

Leaves: Alternate, oblanceolate (up to 6" long) at base; smaller and clasping up the stem; resinous (sticky); toothed edges.

Flowers: Heads with sticky resinous involucres; bracts reflexed with green tips; disk 8-25 mm wide; rays yellow (12-18) and 5-15 mm long (June - October).

Fruit: Achenes with 1-3 knobs at top when mature.

Oak Fern

Gymnocarpium dryopteris **GYDR**
Family - Polypodiaceae

Range: Circumboreal, throughout Pacific Northwest.

Habitat: Moist, cool sites in grand fir series plant associations at mid elevations, perhaps where seepages provide unbound water.

Look Alikes: Not confused with other local ferns.

Indicator Value: Defines the ABGR/GYDR plant association of the northern Blue Mountains.

Miscellany: The common name "oak" fern may be from Europe where it is found growing under oak trees. Unpalatable.

C. Johnson

Oak Fern

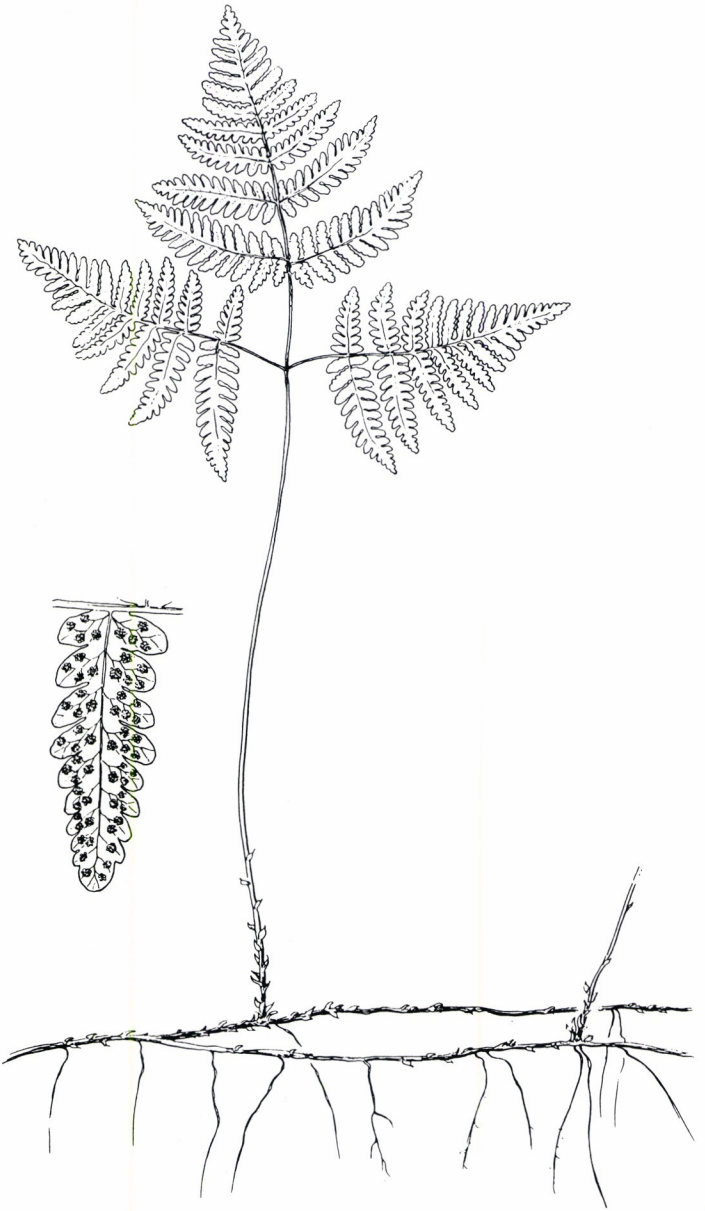
Gymnocarpium dryopteris **GYDR**

Habit: Delicate, rhizomatous, perennial fern (4-12 inches tall).

Stem: Dark brown to black.

Leaves: Deciduous, twice triangular - bipinnately compound, frond parallels ground, pinnae opposite and tapering to tip.

Sort: Indusium lacking; borne on underside of leaves.



Western Hawkweed

Hieracium albertinum **HIAL2**
Family - Compositae

Range: Eastern Washington to northeast Oregon, central Idaho and western Montana.

Habitat: Grassy steppe extending into warm, dry forest sites at lower elevations.

Look Alikes: Readily confused with white flowered hawkweed (***Hieracium albiflorum***) when the white flowers are absent. White flowered hawkweeds are less hairy; lower leaves long, petiolate.

Indicator Value: Affinity to Douglas-fir series plant associations (PSME/CARU, PSME/SPBE); may also be found in ponderosa pine plant associations.

Miscellany: Palatable to sheep, deer, and elk. Increases slightly with disturbance. Not aggressive. Used as source of chewing gum by Native Americans. The species name "albertinum" relates to Alberta, Canada.

C. Johnson

Western Hawkweed

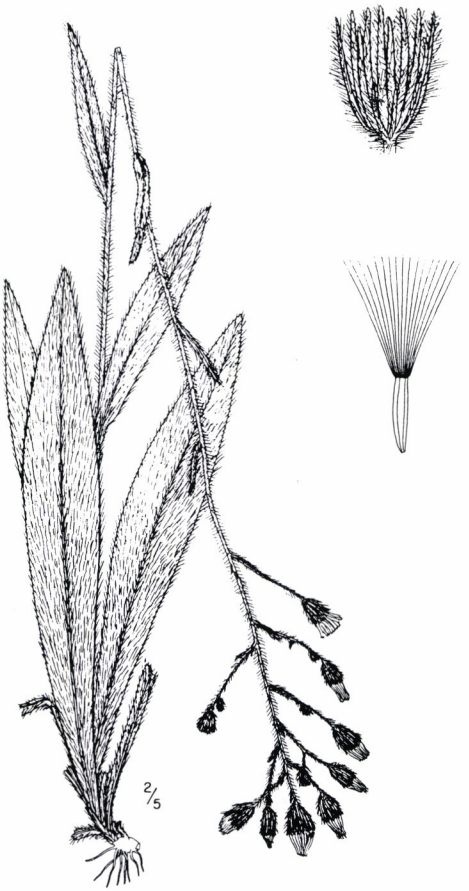
Hieracium albertinum **HIAL2**

Habit: Deciduous, short (10-20 inches) perennial forb; densely pubescent with long spreading white hairs; milky sap throughout plant.

Leaves: Lower leaves elongated without petiole; middle and upper cauline leaves reduced and sessile; alternate, entire margins; long hairy.

Flowers: Yellow, heads few to many, involucre densely hairy with stellate hairs (July - August).

Fruit: Achene.



White Hawkweed

Hieracium albiflorum **HIAL**
Family - Compositae

Range: Widespread throughout the Pacific Northwest.

Habitat: Douglas-fir to subalpine fir communities at cool, moist, mid elevations in the mountains.

Look Alikes: Readily confused with western hawkweed (***Hieracium albertinum***) when the yellow flowers are absent. Western hawkweed stems and leaves are long hairy; lower leaves sessile to short petiolate.

Indicator Value: More mesic sites than where yellow hawkweed occurs (both occur together in Douglas-fir series communities). Affinity to grand and subalpine fir series vegetation.

Miscellany: Palatable to sheep, deer, and elk. Used as source of chewing gum by Native Americans.

C. Johnson

White Hawkweed

Hieracium albiflorum **HIAL**

Habit: Deciduous, medium (12-30 inches) perennial forb; long, scattered pubescence at plant base to glabrous above; milky sap throughout plant.

Leaves: Lower leaves elliptic; petiolate; middle and upper cauline leaves reduced and sessile; alternate; margin entire to wavy.

Flowers: White, heads few to many, involucre glabrous to hairy; blackish-green color with stellate hairs (June - August).

Fruit: Achene.

Goatweed, St. John's Wort

Hypericum perforatum **HYPE**
Family - Hypericaceae

Range: Introduced "noxious weed" from Europe now naturalized throughout the United States. Especially common in the Pacific Northwest and California.

Habitat: Depleted rangelands, old fields at lower elevations in the mountains, on grassy ridges and in canyons on benches and bottoms.

Look Alikes: Differentiate from the other *Hypericum* species: bog St. John's wort (***H. anagalloides***) and (***H. majus***) - petals about equal to sepals without black-dotted margins; western St. John's wort (***H. formosum***) - ovate leaves; less than 12 inches tall; rhizomatous.

Indicator Value: Disturbance Indicator. Invader of severely overgrazed and abandoned cultivated sites. Invasive to lower elevation canyon grasslands and shrublands. Prominent in FEID-KOCR, AGSP-POSA3/ERPU, AGSP-POSA3/granite, SYAL-ROSA, GLNE/AGSP, RHGL/AGSP and sand dropseed plant associations.

Miscellany: Difficult to eradicate. Poisonous to sheep and especially to cattle. Especially injurious to white skin horses and cattle and sheep exposed to strong sunlight after eating the plant (develop scabby sores and itches). Generally avoided due to bitterness. Successfully controlled (not eliminated) by the **Chrysolina** beetle (introduced in the 1950s to Pacific NW). Burning enhances status of the stands. Plants are smoked over fires on eve of St. John's Day (6/24) in England to ward off evil spirits and sickness. Spreads by high seed output and creeping rhizomes.

C. Johnson

Goatweed, St. John's Wort

Hypericum perforatum **HYPE**

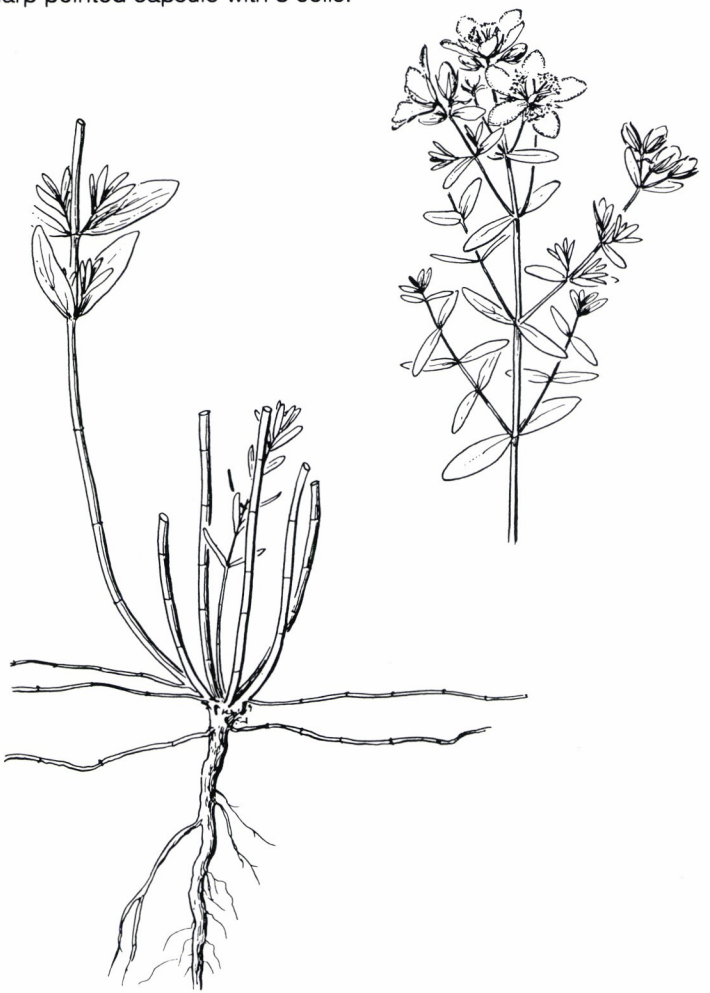
Habit: Taprooted perennial with short rhizomes (also stoloniferous); patch-forming.

Stems: Erect, several, freely branching (10-30 inches tall); reddish woody at base.

Leaves: Sessile, opposite; lanceolate to obovate to spatulate (up to 1 inch long) with inrolled margins; purplish-black dotted or "perforated" appearance due to transparent glands (thus the species name - ***perforatum***).

Flowers: Compound cymes; many flowered with orange-yellow petals (petal margins purplish-black); flower parts in 5's; petals twice as long as sepals (3/4 inch across); many stamens with purplish tips (June - July).

Fruit: Sharp pointed capsule with 3 cells.



Prickly Lettuce

Lactuca serriola **LASE**
Family - Compositae

Range: Common throughout the United States; naturalized "weed" from Europe.

Habitat: Abandoned fields, road cuts and fills; highly disturbed forest, shrub and grasslands.

Look Alikes: May be confused with other composites having yellow heads with ray flowers only. Differentiated from ***Crepis***, ***Agoseris*** and ***Hieracium*** using the flattened, beaked achenes. The long beak (2 times length of achene), many flowered heads, and yellow flowers differentiate this ***Lactuca*** species from others.

Indicator Value: Disturbance Indicator. Invades overgrazed grasslands, shrublands and burned or silviculturally modified forests.

Miscellany: Noxious weed. Spreads via rhizomes and prolific seed. Leaves twist at base to orient with sunlight. Seeds used by pheasants, grouse, goldfinches, bluebirds. Native Americans chewed gum from the roots. Leaves used in salads, or cooked as greens, before plant flowers.

P. Brooks

Prickly Lettuce

Lactuca serriola **LASE**

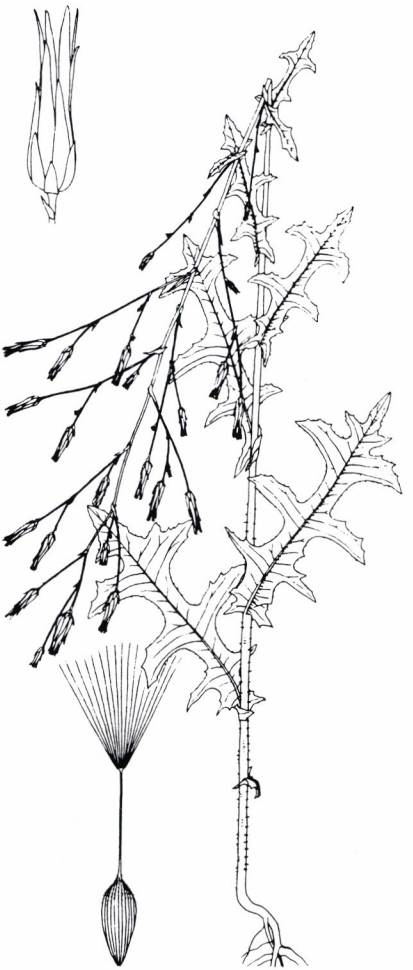
Habit: Biennial (or winter annual); bluish-green cast.

Stems: Glabrous (up to 5 ft. tall; usually 2-3 ft. tall); milky sap (gives rise to the generic name "Lactuca"); prickles at stem base.

Leaves: "Prickly" on the underside midrib (thus its common name); alternate, pinnately lobed; clasping; (2-12 inches long); prickles at ends of leaf teeth.

Flowers: Numerous heads comprised of ray flowers only; petals lemon yellow - drying blue (July - September).

Fruit: Achenes (gray or yellowish) beaked and flattened with circle of white hairs (which help distribute the light seed on air currents).



Thick-Leaved Peavine

Lathyrus lanszwertii **LALA2**
Family - Leguminosae

Range: Throughout the Pacific Northwest and Utah.

Habitat: Warm, moist to warm, dry ponderosa pine to grand fir sites at low to mid elevations.

Look Alikes: Other climbing plants with pinnately compound leaves can be confused with this peavine. Differentiate as follows: few-flowered peavine (***Lathyrus pauciflorus***) - broad toothed stipules, unbranched tendrils; Cusick's peavine (***L. nevadensis cusickii***) - stipules narrow, unbranched tendrils; American vetch (***Vicia americana***) - branched tendrils, style bottlebrush-like, leaves narrow, thin.

Indicator Value: Notably occurs in early and mid seral stages of grand fir plant associations where ponderosa pine and Douglas-fir dominate (ABGR/CARU, ABGR/SPBE).

Miscellany: Nitrogen-fixing plant; palatable; seeds are poisonous.

L. Volland

Thick-Leaved Peavine

Lathyrus lanszwertii **LALA2**

Habit: Prostrate or climbing perennial up to 3 feet tall; rhizomatous.

Stems: Angled (not winged), trailing or clambering.

Leaves: Alternate, pinnately compound, leaflets 4 to 10 pairs; linear, thick, heavily veined; tendrils often well developed - unbranched; stipules linear to lanceolate.

Flowers: Lavender to pink-violet, pencilled red-purple; 2 to 8 on floral stalks at leaf axils; style toothbrush-like (May - June).

Fruit: Pod 1 1/2-2 1/2 inches long.

Cusick's Peavine

***Lathyrus nevadensis* (var. *cusickii*)** **LANEC**
Family - Leguminosae

Range: Oregon, Washington, and Idaho.

Habitat: Open coniferous woodlands on warm, dry and warm, moist sites at mid to low elevations.

Look Alikes: Other climbing plants with pinnately compound leaves may be confused with this peavine. Differentiate as follows: thick-leaved peavine (*Lathyrus lanszwertii*) - thick, linear leaves, narrow stipules, unbranched tendrils; few-flowered peavine (*L. pauciflorus*) - thin oblong leaves, broad toothed stipules, unbranched tendrils; American vetch (*Vicia americana*) - small, thin leaves - bottlebrush-like style, branched tendrils.

Indicator Value: Defines early seral grand fir and Douglas-fir plant associations on steep canyon slopes (ABGR/VAME, ABGR/CARU, PSME/ACGLPHMA).

Miscellany: Nitrogen-fixing plant, palatable - especially to sheep. Seeds poisonous.

C. Johnson

Cusick's Peavine

***Lathyrus nevadensis* (var. *cusickii*)** **LANEC**

Habit: Erect, clambering, perennial forb; rhizomatous (6-32 inches tall).

Stems: Angled (not winged).

Leaves: Alternate, pinnately compound, leaflets 2-4 pairs; thin, ovate to obovate; unbranched tendrils; stipules lanceolate.

Flowers: White (pinkish veined); 1-4 on floral stalks; style toothbrush-like (May - July).

Fruit: Pod (1-3 inches long).

Few-Flowered Peavine

Lathyrus pauciflorus **LAPA2**
Family - Leguminosae

Range: Eastern Washington and Oregon to Idaho and south in Rocky Mountains.

Habitat: Warm, dry grand fir communities; warm moist Douglas-fir communities at low to mid elevations.

Look Alikes: Other climbing plants with pinnately compound leaves may be confused with this peavine. Differentiate as follows: thick-leaved peavine (***Lathyrus lanszwertii***) - thick, linear leaves; violet flowers; Cusick's peavine (***L. nevadensis cusickii***) - thin, ovate leaves; white flowers; American vetch (***Vicia americana***) - thin, narrow, small leaves; bottlebrush style.

Indicator Value: Defines early and mid seral grand fir vegetation under ABGR/SPBE, ABGR/ACGL-PHMA and other warm, dry true fir sites.

Miscellany: Increases with grazing abuse; nitrogen-fixing; seeds poisonous.

C. Williams

Few-Flowered Peavine

Lathyrus pauciflorus **LAPA2**

Habit: Erect, perennial forb (8-24 inches tall); strong taproot and short rootstocks.

Stem: Angled strongly (not winged).

Leaves: Alternate, pinnately compound, leaflets thick and fleshy (8-10 pairs); linear-lanceolate; simple or branched tendrils; stipules ovate-lanceolate, toothed.

Flowered: Pinkish to violet-purple (aging bluish); 4-7 on stalk; toothbrush-like style (April - June).

Fruit: Pod (1 1/2-2 inches long).

Wallowa Lewisia

***Lewisia columbiana* (var. *wallowensis*)** **LECOW**
Family - Portulacaceae

Range: The species is found from British Columbia southward in the Cascades, Olympics, and Coast Ranges to northwest California and south in the Sierra Nevada Mtns. The variety ***wallowensis*** is endemic to the Wallowa Mountains of northeast Oregon and the Seven Devils Mountains of adjacent Idaho.

Habitat: Rocky outcrops, rocky ridges and slopes from 4,000 - 7,000 ft. in full sunlight.

Look Alikes: Spring beauties (***Claytonia* spp.**) - especially alpine spring beauty (***C. megarhiza*****)** - leaves on flowering stem as well as at the base; petals and stamens usually 5.

Indicator Value: Type indicator of the Wallowa lewisia plant community type.

Miscellany: May invade adjacent deeper soil sites from rimrock and rocky ridgetop habitats.

C. Johnson

Wallowa Lewisia

***Lewisia columbiana* (var. *wallowensis*)** **LECOW**

Habit: Succulent perennial forb from a simple or branched caudex and a fleshy root.

Stems: Often red-purple (about 6 inches tall).

Leaves: Numerous fleshy basal leaves; linear-oblanceolate to narrowly spatulate; less than 1 1/2 inches long.

Flowers: Floral stem (4-12 inches tall) with glandular, toothed bracts; panicle has glandular - toothed bracts; sepals 2, also glandular - toothed; petals (7-9) white with pink venation ("candy stripe"); stamens 6 or more (May - August).

Fruit: Capsule (2 times calyx length).

Linanthastrum

Linanthastrum nuttallii **LINU**
Family - Polemoniaceae

Range: Cascades, Sierras, Blues and Wallowas to Rocky Mountains.

Habitat: Dry, rocky or sandy sunny slopes at high elevations to about 9,200 feet.

Look Alikes: May be confused with phloxes (***Phlox*** spp.) - leaves not lobed or divided into leaflets.

Indicator Value: Defines the whitebark pine zone. Occurs beneath whitebark pine, lodgepole pine, and subalpine fir. Common in Wallowas on overgrazed green fescue sites.

Miscellany: Unpalatable.

C. Johnson

Linanthastrum

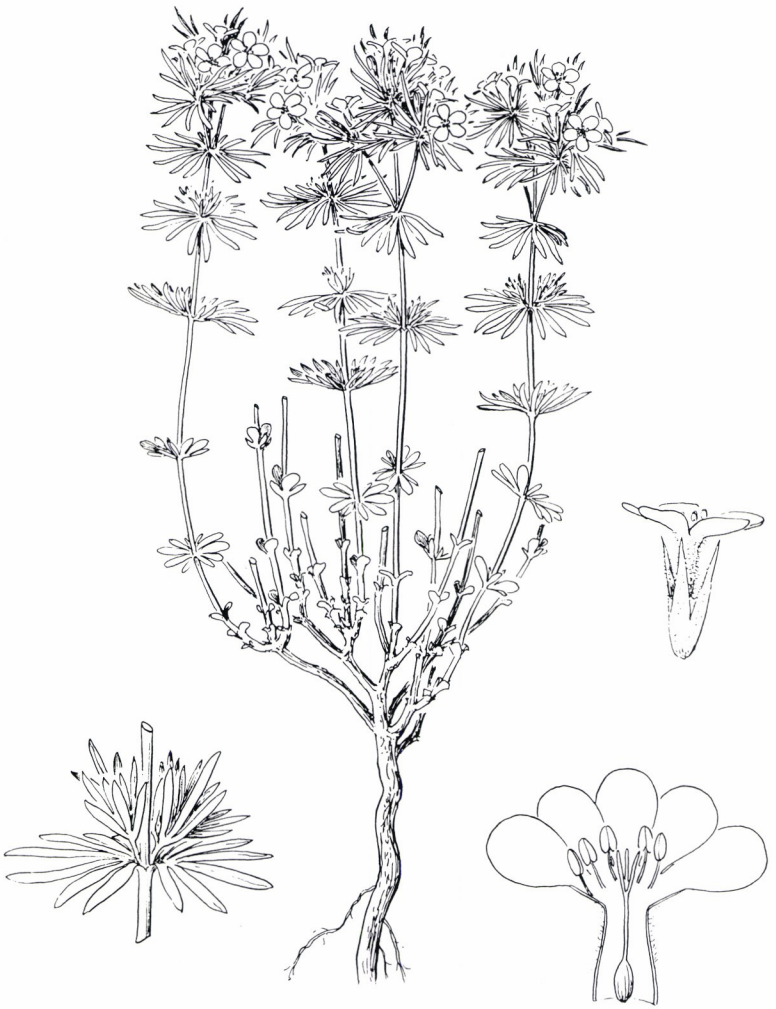
Linanthastrum nuttallii **LINU**

Habit: Taprooted aromatic perennial forb arising from woody caudex; up to 12 inches tall.

Leaves: Opposite, 5-9 parted into linear segments, forming a whorl; 3/4 inch long.

Flowers: White with yellow throat born in small terminal cymes (June - August).

Fruit: Oblong capsule.



Cous Biscuitroot

Lomatium cous **LOCO2**
Family - Umbelliferae

Range: Northeast Oregon and southeast Washington eastward across central Idaho, western Montana and northern Wyoming.

Habitat: Dry, open rocky, scabby ridges in the foothills, lower mountainous elevations and lowland flats.

Look Alikes: Other fine-leaved biscuitroots or desert parsleys (***Lomatium*** **spp.**) which may be confused with this species are: swale desert parsley (***L. ambiguum***) - no involucels; glaucous bloom; slenderfruit lomatium (***L. leptocarpum***) - leaf segments less than 5 mm wide; fruits linear; large-fruited lomatium (***L. macrocarpum***) - flowers white to purplish; fern-leaved lomatium (***L. dissectum***) - plants robust - over 20" tall.

Indicator Value: Indicator of scablands. Prominent in all scabland plant associations (AGSP-POSA3 scabland, ARRI/POSA3, POSA3-DAUN, ERDO/POSA3).

Miscellany: The second most important root crop (after camas) to the Nez Perce. Dug in early May, eaten raw or boiled; sun dried and made into a flour. Often made into "brick loaves." Provided a substantial portion of winter food supply and as item of trade. Nez Perce youth sent on a "spirit quest" with 5 "Kouse" roots per day for sustenance. Seeds are good to eat raw or roasted.

C. Johnson

K. Urban

Cous Biscuitroot

Lomatium cous **LOCO2**

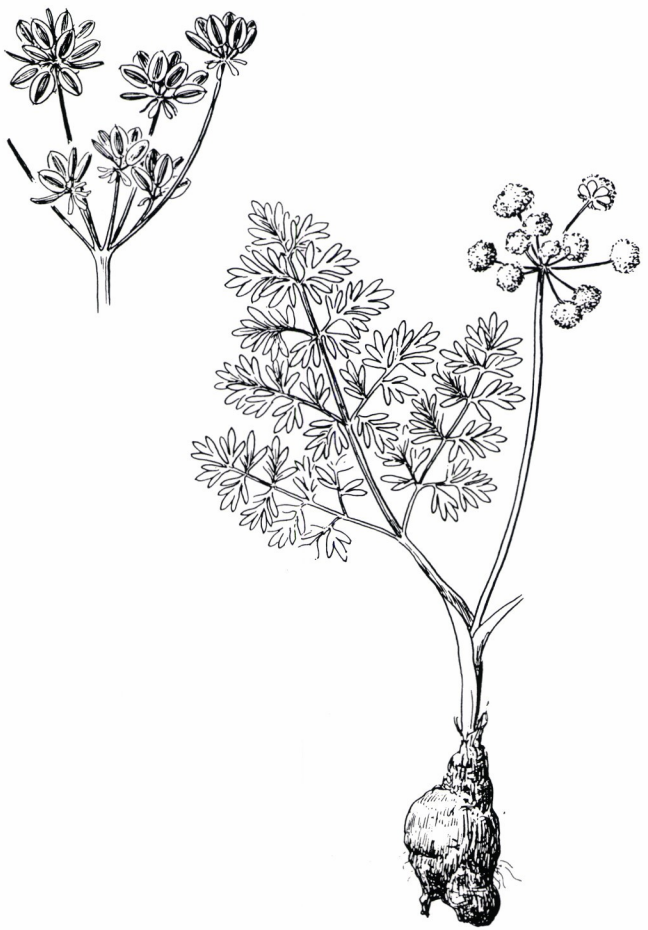
Habit: Glabrous or short hairy perennial forb; root short and tuberous - thickened near the surface of the ground (4 - 20 inches tall).

Stems: Without stems (or with one well-developed stem leaf off a false scape).

Leaves: Pinnately or 3-pinnately dissected ("parsley-like").

Flowers: Umbel with 5-20 rays (elongating unequally); involucel bractlets well developed, oblanceolate to obovate, often purplish; flowers yellow (April - June).

Fruit: Dry schizocarp; oblong to elliptic, glabrous; lateral wings narrower than the body.



Nine-Leaved Lomatium

Lomatium triternatum **LOTR**
Family - Umbelliferae

Range: Southern Alberta and British Columbia throughout the Pacific Northwest to California, Nevada, Utah and Colorado.

Habitat: Open grassy slopes in dry to moist grasslands from the foothills to moderate mountain elevations.

Look Alikes: Other linear-leaved biscuitroots or desert parsleys (*Lomatium* spp.) which may be confused with this species are: Cusick's biscuitroot (*L. cusickii*) - flowers white to purplish; Leiberg's biscuitroot (*L. orogenioides*) - flowers white; slender-fruit biscuitroot (*L. leptocarpum*) - fruits linear to very narrow; swale desert parsley (*L. ambiguum*) - involucel absent; root globose-thickened.

Indicator Value: Prominent in the deeper soil bunchgrass and shrub-grass communities. Found in FEID-KOCR, FEID-AGSP, PUTR/FEID and ARTRV/FEID.

Miscellany: Root not tuberous - thickened. Not sought for flour and biscuit making. Stems edible in spring. Tea can be made from leaves, stems, flowers. Roots are edible raw. Seeds are good to eat raw or roasted.

C. Johnson

Nine-Leaved Lomatium

Lomatium triternatum **LOTR**

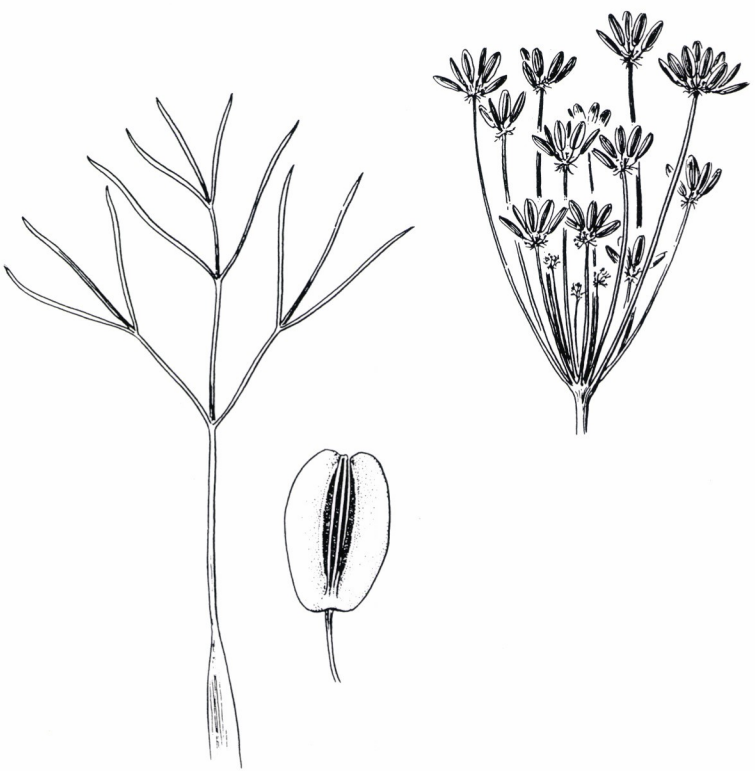
Habit: Perennial forb (8-32 inches tall) from an elongated (seldom thickened) taproot.

Stems: Scapes - solitary or few, erect from a short caudex.

Leaves: Basal (with 1 or more well developed cauline leaves at middle of stem); "tri-ternate" - 3 times pinnately compound with long, narrow leaflets (up to 4 inches long).

Flowers: Compound umbels with unequal rays; flowers yellow (May - July).

Fruit: Dry schizocarp; oblong to elliptic, glabrous; wings less than half width of body.



Tailcup Lupine

Lupinus caudatus **LUCA**
Family - Leguminosae

Range: Eastern Oregon, southward to California, east to Montana and Colorado.

Habitat: Typically occurs beneath ponderosa pine in low to mid-elevation warm dry sites.

Look Alikes: May be confused with other lupines, especially spurred lupine (***Lupinus laxiflorus***) - hairs on wing petals; upper calyx lip 1/4 wing petal length or less.

Indicator Value: Prominent beneath successional and climax ponderosa pine communities (i.e., ABGR/CARU, PSME/CARU, PSME/SPBE, PIPO/SYAL, PIPO/FEID and PIPO/AGSP). Increases with grazing degradation.

Miscellany: Poisonous to sheep and horses, toxic to sheep. Seeds and pods most toxic parts. Pocket gophers use roots extensively. Native Americans used teas from seeds to help urination and as emergency food (following leaching). Belief in birth of a daughter if pregnant woman drank tea from lupine root extract. Nitrogen-fixing.

C. Johnson

Tailcup Lupine

Lupinus caudatus **LUCA**

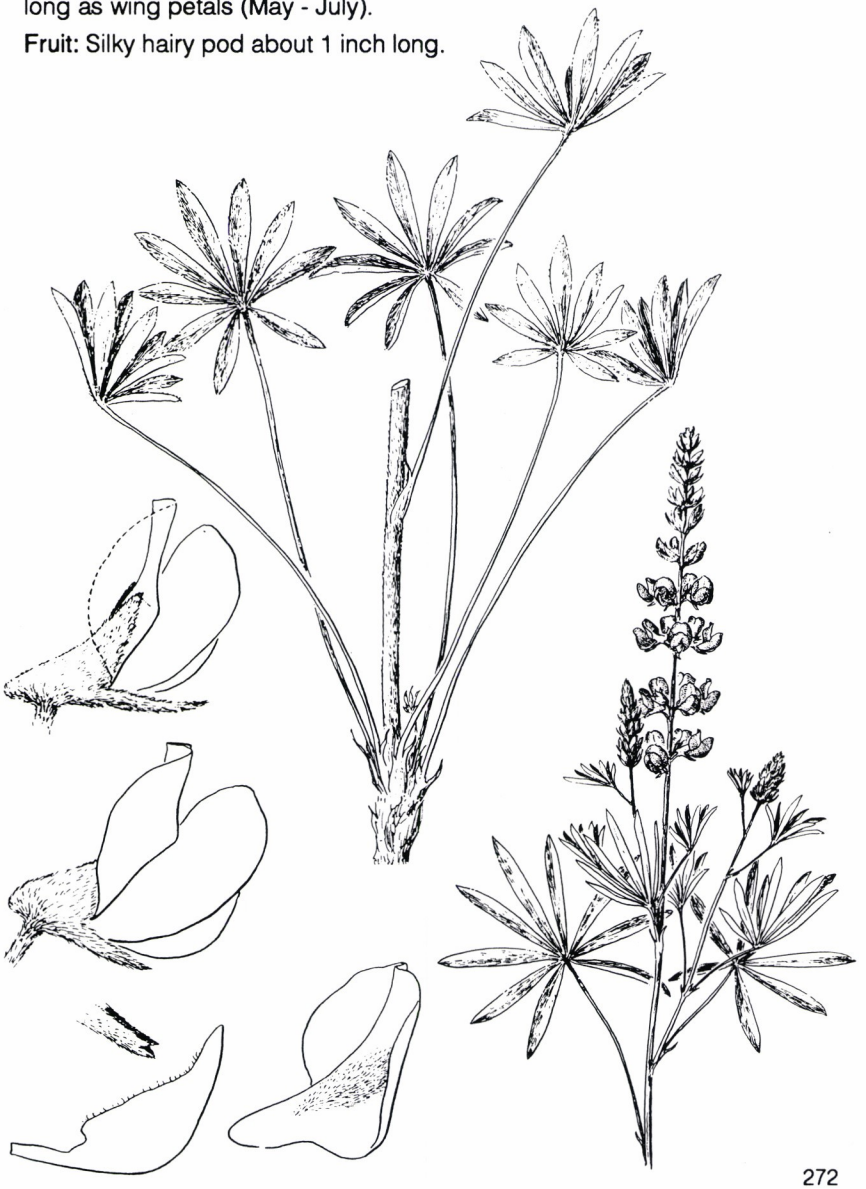
Habit: Silvery erect perennial forb (8-16 inches tall); woody caudex.

Stems: Clustered, vaselike.

Leaves: Alternate, deciduous, 7-9 palmately-divided oblanceolate leaflets - up to 2 inches long; petiole two times as long as blade on basal leaves; silky hairy on both leaf surfaces.

Flowers: Light blue to violet; racemes up to 12 inches long; calyx spurred; wing petal glabrous; banner hairy on upper surface; calyx lip 1/3-3/4 as long as wing petals (May - July).

Fruit: Silky hairy pod about 1 inch long.



Spurred Lupine

Lupinus laxiflorus **LULA2**
Family - Leguminosae

Range: Mainly east of Cascades in Washington, Oregon; east to Idaho, Montana, Utah, and Nevada.

Habitat: Moist, warm to dry, cool mid to high elevation sites occurring with virtually all coniferous tree species in northeastern Oregon.

Look Alikes: May be confused with other lupines, especially tailcup lupine (*Lupinus caudatus*) - glabrous wing petals; upper calyx lip 1/3 wing petal length or greater.

Indicator Value: Often mixed with tailcup lupine (*L. caudatus*) at lower elevations beneath pines; reaches high into Wallowas (up to 8,000 feet) with green fescue beneath lodgepole pine and subalpine fir.

Miscellany: Taken in quantity, spurred lupine can cause colic in horses, excitability in sheep, and prostration in cattle. Mature fruits are especially toxic to cattle. Nitrogen-fixing.

C. Johnson

Spurred Lupine

Lupinus laxiflorus **LULA2**

Habit: Greenish to grayish erect perennial forb (8-20 inches tall); woody caudex.

Stem: Clustered, ascending vaselike.

Leaves: Alternate, deciduous, 7-11 palmately-divided oblanceolate leaflets 1-2 inches long; petiole 2-4 times as long as lower basal blades; glabrous or pubescent above.

Flowers: Creamy to bluish, pinkish, violet, rose or purple often on same plant; racemes up to 8 inches long; calyx spurred; wings pubescent on tips; banner hairy on upper surface; calyx lip 1/5-1/4 as long as wing petioles (May - July).

Fruits: Silky-hairy pods about 1 inch long.

Silky Lupine

Lupinus sericeus **LUSE**
Family - Leguminosae

Range: The most common lupine in the west. British Columbia southward on east side of Cascades to California and Arizona. East from British Columbia to Alberta and through the Rockies to New Mexico. Found throughout the inland Pacific Northwest.

Habitat: The more productive, mesic grasslands and shrublands on well drained soils of canyon slopes, ridges and the lower montane. Can be found under climax ponderosa pine with bunchgrasses.

Look Alikes: Differentiate from other lupines common to the inland Pacific Northwest as follows: tailcup lupine (***Lupinus caudatus***) - spurred; spurred lupine (***L. laxiflorus***) - spurred; velvet lupine (***L. leucophyllus***) - densely congested racemes (6-8 inches long); prairie lupine (***L. lepidus***) - low and spreading; banner not hairy on back.

Indicator Value: Type indicator for the more mesic, higher productivity FEID-AGSP plant association - (FEID-AGSP/LUSE). Also commonly occurring in FEID-KOCR and ARTRV/FEID plant associations. Increases with overgrazing.

Miscellany: An invader in high elevation grasslands. Susceptible to fire. Becomes dangerous to livestock after pods mature (after August) due to high alkaloid concentration in the seeds. Sheep are the most susceptible to poisoning. A nitrogen-fixing plant. Seeds eaten by quail, nutcrackers, ground squirrels.

C. Johnson

Silky Lupine

Lupinus sericeus **LUSE**

Habit: Perennial forb from a taproot.

Stems: Branched from the root crown to several stems (8-20 inches tall). Silvery from the dense pubescence.

Leaves: Palmately compound with 7-9 leaflets; oblanceolate (2 1/2 inches long); silvery green from the dense pubescence. Petioles of lower leaves up to 3 times as long as the blade.

Flowers: Raceme (4-6 inches long); flowers vary in color (usually lavender to blue); not spurred; calyx silky hairy; banner silky hairy on back (over 2/3 length); wings glabrous (often pencilled) (May - August).

Fruit: Pods-silky (about 1" long).

Cluster Tarweed

Madia glomerata **MAGL**
Family - Compositae

Range: British Columbia to Saskatchewan; southward to California, northern Arizona and Colorado.

Habitat: Dry, open sites from foothills, valleys, flats to moderate elevations in the mountains on deep to moderately deep soils.

Look Alikes: The spindle-shaped heads are unique and help differentiate it from other tarweeds. The glomerate heads (clustered densely) are indicative of cluster tarweed - all other tarweeds have more open inflorescences.

Indicator Value: Invader of depleted rangelands that are severely overgrazed. Usually found in dense stands where most competitive herbaceous plants have been eliminated by selective grazing or allelopathic response.

Miscellany: Heavily scented (disagreeable odor of "tar"). Unpalatable to grazing animals. Once established the plant exudes resinous droplets from its glands to effectively sterilize the immediate site from other competitors (allelopathic). Seeds are eaten by quail, juncos, meadowlarks, goldfinches, sparrows, chipmunks and ground squirrels. Humans can eat the seeds raw, roasted, dried or ground into flour.

C. Johnson

Cluster Tarweed

Madia glomerata **MAGL**

Habit: Slender hairy annual (4-12 inches tall), erect, hairy, glandular, sticky and foul-smelling.

Stems: Glandular, hairy with ascending branches (or simple).

Leaves: Linear (up to 3 inches long).

Flowers: Spindle-shaped heads in small dense clusters; ray flowers inconspicuous (yellow-purple); disk flowers yellow; involucral bracts exude a tarry resin (July - September).

Fruit: Achene (without pappus) - dark brown to black.

Alpine Mitrewort

Mitella pentandra **MIPE**
Family - Saxifragaceae

Range: Throughout the Pacific Northwest.

Habitat: Moist, cool forested sites; along streams and in wet meadows.

Look Alikes: Alumroots (*Heuchera* spp.) - leaves with hairy petioles; petals not lobed - often missing; Brewer's mitrewort (***Mitella breweri***) - 7-11 lobes on leaf; flowers in all-sided raceme; side-flowered mitrewort (***M. stauropetala***) - 5-7 lobes on leaf, purplish beneath; one-sided raceme.

Indicator Value: Often beneath moist, cool ABGR and ABLA2 plant associations; common in spruce bottoms.

Miscellany: Easily grown in the transplant garden.

C. Johnson

Alpine Mitrewort

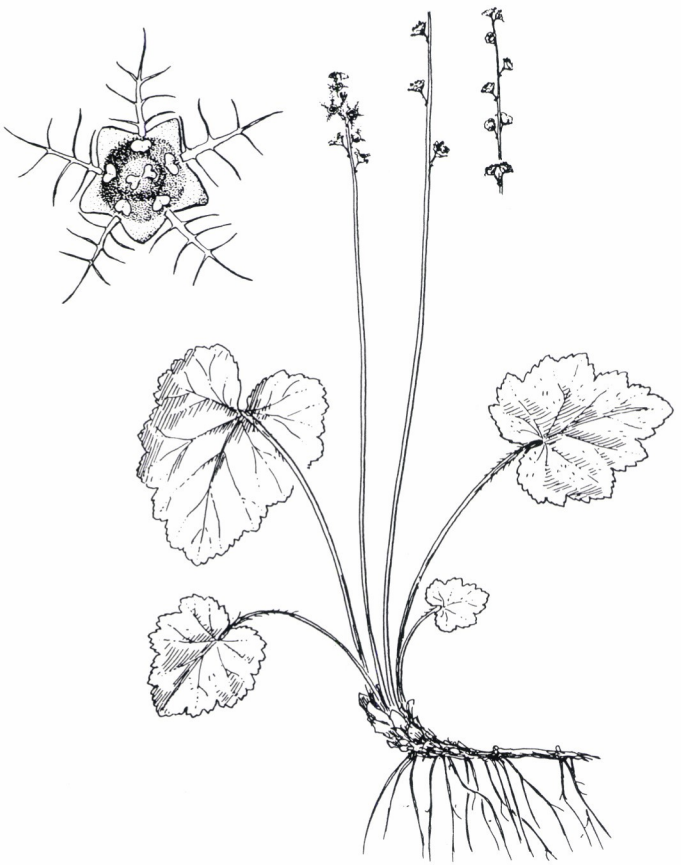
Mitella pentandra **MIPE**

Habit: Low, deciduous, perennial forb; scapes 8-12 inches tall; often stoloniferous.

Leaves: Basal, long-petioled, ovate-cordate (1-2 inches wide); glabrous to scattered hairy.

Flowers: Petals greenish, dissected in 8-10 filiform segments; calyx saucer-shaped; 5 stamens located opposite petals; raceme 6-25 flowered on all sides (June - August).

Fruit: Many tiny, shiny black seeds located in capsule.



Side-Flowered Mitrewort

Mitella stauropetala **MIST2**

Family - Saxifragaceae

Range: Blue, Wallowa, Ochoco Mountains of eastern Oregon, extreme eastern Washington to Rocky Mountains.

Habitat: Moist, warm to moist cool upland forests.

Look Alikes: Alumroots (***Heuchera*** **spp.**) - leaves with hairy petioles; unlobed petals - often missing; Brewer's mitrewort (***Mitella breweri***) - leaves 2-3 inches wide, flowers 20-60, stamens alternate with petals; alpine mitrewort (*M. pentandra*) - leaves 1-2 inches wide, flowers 6-25, stamens opposite the petals.

Indicator Value: Defines PSME and ABGR site potentials (most common in steep slope communities of ABGR/VAME, ABGR/ACGL, PSME/ACGL-PHMA, PSME/PHMA).

Miscellany: Unpalatable.

C. Johnson

Side-Flowered Mitrewort

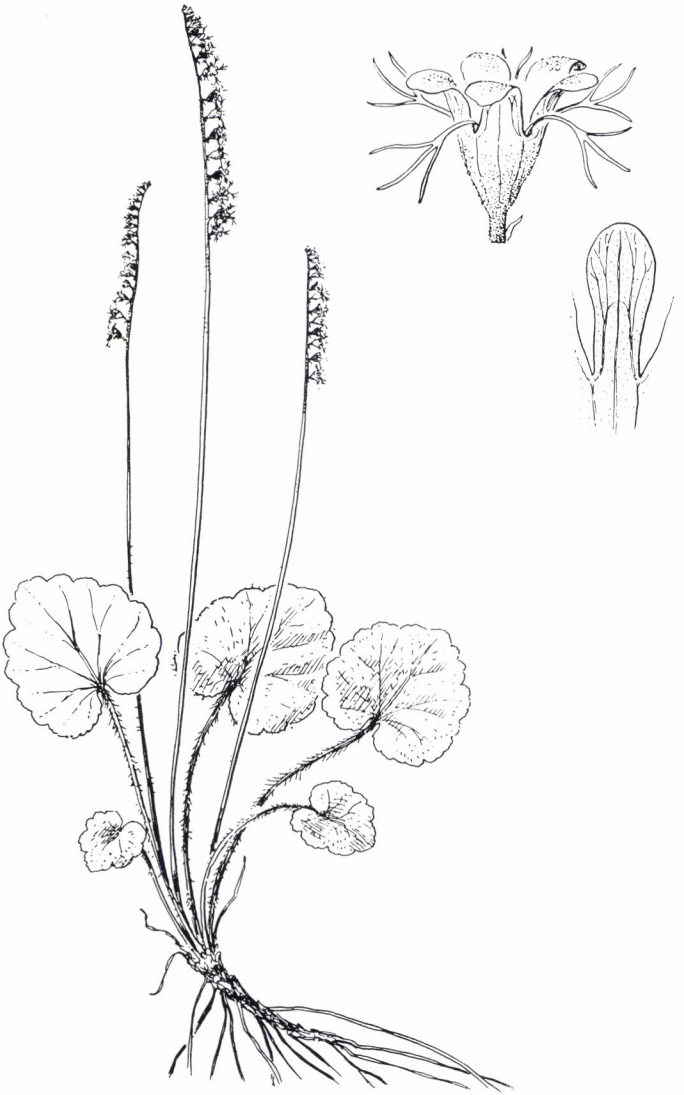
Mitella stauropetala **MIST2**

Habit: Low, deciduous, perennial forb; scapes up to 20 inches tall; rhizomatous.

Leaves: Basal, cordate to reniform (1-3 inches wide); sparsely hairy on both sides; often purplish-tinged.

Flowers: Petals greenish-white to purplish-tinged; dissected in three filiform segments; calyx bell-shaped; five stamens alternate with petals; raceme 10-35 flowered on one side (May - June).

Fruit: Many tiny, shiny black seeds located in capsule.



Prickly Pear

Opuntia polycantha **OPPO**
Family - Cactaceae

Range: British Columbia to Alberta south through eastern Oregon to Arizona, Texas and Missouri. Occurs in the Great Plains, the Great Basin and the desert southwest.

Habitat: On arid plains, canyons, benches and foothills on gentle slopes. Occurs on a wide range of soils as an increaser on deeper soil sites. It is climax on rocky outcroppings and thin soil ridgetops (i.e., AGSP-POSA3/OPPO, GLNE/AGSP).

Look Alikes: The other prickly pear (***Opuntia fragilis***), which has pods that aren't greatly flattened, is only 2 inches tall and has barbed spines.

Indicator Value: Increases on overgrazed rangelands - especially in drought years when it gains a competitive advantage. Found commonly as early seral species in sand dropseed bench communities. Commonly occurs with bluebunch wheatgrass in the following plant associations: (AGSP-POSA3/ERPU, AGSP-POSA3/PHCO2, AGSP-POSA3 (granite), GLNE/AGSP and CELE2/AGSP). Type indicator of AGSP-POSA3/OPPO.

Miscellany: Spines can cause injury to grazing animals. Antelope and mountain sheep graze the pods; seeds and fruit used by rabbits, ground squirrels, wood rats, chipmunk and mice. An aggressive competitor in drought periods due to its extensive lateral root system. Easily killed by fire - if not by heat, then by desiccation following the burn due to lack of moisture. Can sprout from surviving root crowns after burns. Native Americans ate the pods raw, dried and used them in stews or soups; boiled in a tea as remedy for diarrhea.

C. Johnson

Prickly Pear

Opuntia polycantha **OPPO**

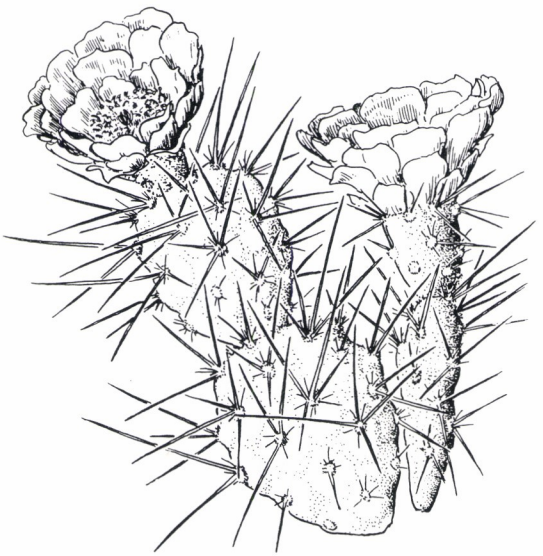
Habit: Fleshy forb; 4-12 inches tall; a shallow, extensive lateral root system forms rounded clumps and spreads into mats.

Stems: Fleshy, strongly flattened, jointed into obovate segments; straight spines up to 2 inches long cover the stem (only slightly barbed).

Leaves: Fleshy with tawny bristles.

Flowers: Appearing waxy (2-3 inches long); yellow - (often reddish-tinged); many stamens shorter than petals (May - June).

Fruit: Pear-shaped berry (brown or tan); gets common name from the prickly fruit.



Sweet Cicely, Sweetroot

Osmorhiza chilensis **OSCH**
Family - Umbelliferae

Range: Throughout the western and northeastern United States; Chile and Argentina.

Habitat: Wide range from warm, dry to cool, moist sites at mid to upper elevations.

Look Alikes: Other plants with similar leaves are: western sweetroot (***Osmorhiza occidentalis***) - glabrous fruits; pungent licorice smell; western goldthread (***Coptis occidentalis***) - shiny, ovate leaflets; Piper's anemone (***Anemone piperi***) - three biserrate leaflets; nonlicorice taste.

Indicator Value: Common in Douglas-fir warm, dry plant associations (PSME/SYOR) and throughout most true fir plant associations (ABLA2 and ABGR).

Miscellany: Palatable to cattle, sheep, deer, and elk (*O. occidentalis* is highly palatable, relished). Roots are edible; gives anise flavoring to food and drink.

C. Johnson

Sweet Cicely, Sweetroot

Osmorhiza chilensis **OSCH**

Habit: Deciduous perennial forb (12-40 inches tall); well-developed taproot.

Stem: Slender, solitary or branched; light hairiness.

Leaves: Basally arranged; thin, biternately compound; ovate, coarsely serrated, incised or lobed leaflets (1-3 inches long). Usually 1 to 3 cauline leaves on short petioles.

Flowers: Greenish-white, inconspicuous, borne in compound umbels (April - June).

Fruit: Green (drying black), hairy schizocarp with beak at apex (clings to clothing).

Sickletop Lousewort

Pedicularis racemosa **PERA**
Family - Scrophulariaceae

Range: Widespread in Pacific Northwest.

Habitat: Cool, moist upper elevation sites in spruce and subalpine fir communities.

Look Alikes: Differentiate from other louseworts as follows: white coiled lousewort (***Pedicularis contorta***) - narrow, pinnate leaves; bracted lousewort (***P. bracteosa***) - large, pinnately compound leaves.

Indicator Value: Defines subalpine fir zone vegetation; natural regeneration difficulties.

Miscellany: Our only lousewort with simple leaves. Intermediate host to stalactiform blister rust. Unpalatable. Also called "parrot's beak" based on distinctive upper corolla lip.

C. Johnson

Sickletop Lousewort

Pedicularis racemosa **PERA**

Habit: Deciduous, perennial forb (6-20 inches tall); woody caudex.

Leaves: Simple, alternate; linear to lanceolate (2-4 inches long); cauline only; doubly serrate margin.

Flowers: White; galea arched and tapers into a down-curved beak ("parrot's beak"); raceme spikelike (June - September).

Fruit: Capsule, flattened and arched.

Hot Rock Penstemon

Penstemon deustus **PEDE**

Family - Scrophulariaceae

Range: Central Washington to western Montana and northern Wyoming; southward to California, Nevada and Utah. Occurs throughout the inland Pacific Northwest.

Habitat: Dry, open rocky slopes, ridges, flats from lowlands to moderate mountainous elevations. Affinity to basaltic substrates.

Look Alikes: Very distinctive. The only white penstemon with a woody base and sharply serrated leaves.

Indicator Value: Invades overgrazed bunchgrass sites from natural habitat on rocky ridges, outcroppings, and gravel washes. Occurs in gravelly, rocky fescue communities (FEID-AGSP/BASA, PUTR/FEID-AGSP, JUOC/FEID-AGSP) and on the basaltic bluebunch wheatgrass communities (AGSP-POSA3/SCAN, AGSP-POSA3 (basalt), PUTR/AGSP).

Miscellany: Seeds are eaten by finches, ground squirrels and mice.

C. Johnson

Hot Rock Penstemon

Penstemon deustus **PEDE**

Habit: Perennial forb (8-24 inches tall) with a much-branched woody base; erect.

Leaves: Opposite, elliptic to oblanceolate; bright green; sharply toothed (up to 2 1/2 inches long); short petioled at base; clasping on flowering stem.

Flowers: Inflorescence glandular; corolla white - with purple pencilling on throat of corolla tube (8-20 mm long); 2-lipped - upper lip shorter than lower; 5 stamens - 1 sterile; anther sacs open all the way and spread (May - July).

Fruit: Capsule.

Globe Penstemon

Penstemon globosus **PEGL4**
Family - Scrophulariaceae

Range: Northern and west central Idaho; Wallowa and Baker Counties in Oregon. A local endemic.

Habitat: Moist to dry meadows; moist open slopes at middle to high elevations in the mountains.

Look Alikes: Other blue penstemons with entire leaf margins can be differentiated as follows: Wallowa penstemon (***Penstemon spatulatus***) - glandular inflorescence; guidelines inside throat of corolla; taper-leaved penstemon (***P. attenuatus***) - glandular inflorescence; no guidelines; Payette penstemon (***P. payettensis***) - corollas 18-28 mm long; palate not bearded; showy penstemon (***P. speciosus***) - corollas 25-38 mm long; palate not bearded; small flowered penstemon (***P. procerus***) - corollas 6-11 mm long; pollen sacs opening completely; Rydberg's penstemon (***P. rydbergii***) - corollas 11-15 mm long; pollen sacs opening completely.

Indicator Value: An affinity to communities containing Hood's sedge (***Carex hoodii***). Very commonly occurring in Idaho fescue (subalpine), green fescue, and open whitebark pine stands.

Miscellany: Like most penstemons, increases with disturbance and invades sites which are highly disturbed. Common along constructed trails, around meadow and lake margins where recreational use has caused disturbances.

C. Johnson

Globe Penstemon

Penstemon globosus **PEGL4**

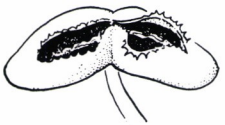
Habit: Tufted perennial forb from a woody base off a woody rhizome (8-24 inches tall).

Stems: Glabrous.

Leaves: Opposite, entire; basal leaves petiolate with oblanceolate to elliptic shape (up to 6 inches long). Cauline leaves sessile with lanceolate to ovate shape (up to 5 inches long).

Flowers: Inflorescence of one to several dense "globose" clusters (not glandular); corolla bright blue to blue-purple (15-20 mm long); palate bearded; staminode densely bearded; pollen sacs partially opening and spread (June - August).

Fruit: Capsule.



Blue Mountain Penstemon

Penstemon venustus **PEVE**

Family - Scrophulariaceae

Range: South central to southwestern Idaho, westward to Baker, Union, Wallowa and Umatilla counties in northeastern Oregon and Walla Walla County in Washington. A local endemic.

Habitat: Open, rocky slopes, ridges from foothills and valleys to moderate montane elevations.

Look Alikes: Differentiate from other blue penstemons with serrated leaves as follows: shrubby penstemon (***Penstemon fruticosus***) - anthers with long, woolly hairs; shrubby; Wilcox's penstemon (***P. wilcoxii***) - flowers small (up to 25 mm); glandular inflorescence.

Indicator Value: Invades overgrazed deeper soil bunchgrass sites from its rocky habitats. Common in dry, rocky and gravelly communities. Prominent in AGSP/ERHE, PUTR/AGSP and JUOC/FEID-AGSP plant associations.

Miscellany: Seeds eaten by ground squirrels, mice and songbirds.

C. Johnson

Blue Mountain Penstemon

Penstemon venustus **PEVE**

Habit: Perennial forb (12-32 inches tall) with a shrubby base off a stout taproot.

Stems: Numerous stems form a rounded plant; herbage glabrous.

Leaves: Opposite, many, all cauline, sessile, lanceolate (1 1/2 - 4 inches long); sharply serrated.

Flowers: Inflorescence glabrous, spike-like panicle; corolla bright lavender to blue-purple (25 - 38 mm long); sterile and fertile filemats bearded at tip; pollen sacs opening for half their length and horseshoe-shaped (May - August).

Fruit: Capsule.

Gairdner's Yampa

Perideridia gairdneri **PEGA2**
Family - Umbelliferae

Range: Southern British Columbia to southern California; eastward to Saskatchewan, South Dakota and New Mexico. Widespread in the west.

Habitat: Dry meadows, open woodlands, shrublands from lower to mid elevations in the mountains (where soil dries by early summer).

Look Alikes: Poison hemlock (*Cicuta douglasii*) is a white umbelliferous forb but has wider leaflets with broader segments (5-25 mm); base of stem thickened with hollow partitions. Bolander's yampa (***Perideridia bolanderi***) has many leaf segments; involucel bractlets lanceolate to obovate.

Indicator Value: Deeper soils near scablands (i.e., mounded slopes); dry, overgrazed meadows and grasslands; shrublands dominated by mountain snowberry and mallow ninebark.

Miscellany: Roots are edible raw (sweet, nutty flavor) or ground into flour. Seeds used for seasoning ("wild caraway"). Nez Perce dug the roots in July when plant was in flower. Used by early pioneers as well (carrot-like sweetness). Readily used by pocket gophers and bears.

C. Johnson

Gairdner's Yampa

Perideridia gairdneri **PEGA2**

Habit: Perennial forb from an enlarged root (usually forked with 2 thickened roots); lacy in overall appearance.

Stems: Solitary (20-40 inches tall); usually 12-18 inches tall.

Leaves: Pinnate (1-2 times) to ternate; elongate, narrow leaf segments (up to 6 inches long). Often withered and dried by flowering time.

Flowers: Umbel (one to several); white; up to 3 inches wide; rays 2 inches long; involucel bractlets bristle-like (July - August).

Fruit: Dry schizocarp; rounded.

Varileaf Phacelia

Phacelia heterophylla **PHHE**
Family - Hydrophyllaceae

Range: Washington to Montana; southward to central California, Arizona and New Mexico. Common in western United States.

Habitat: Dry, open, rocky slopes at lower mountainous elevations.

Look Alikes: Differentiate from other phacelias as follows: silky phacelia (***Phacelia sericea***) - leaves dissected into many, small segments; threadleaf phacelia (***P. linearis***) - leaves all on the stem (not basal); silverleaf phacelia (***P. hastata***) - leaves all entire; usually under 2 ft. tall; often prostrate.

Indicator Value: Common on shifting, deep soil slopes and dry exposures. Commonly found with bluebunch wheatgrass in the drier, warmer communities (AGSP-POSA3/ERPU, AGSP-POSA3/PHCO2, AGSP-POSA3/OPPO, AGSP-POSA3 (granite). Also found in dry shrubland communities dominated by GLNE, CELE, SYOR.

Miscellany: Plants used by ground squirrels, deer and elk.

C. Johnson

Varileaf Phacelia

Phacelia heterophylla **PHHE**

Habit: Biennial or short-lived perennial forb with a slender taproot.

Stems: Erect, stout stems (up to 4 ft. tall) usually 2-3 ft. tall; grayish-green with short hairs.

Leaves: Lower leaves with petioles; 1-2 pairs of lobes or leaflets at base of blade; terminal segment much larger; cauline leaves reduced upward and short petiolate; all leaves prominently veined.

Flowers: Cymes (densely bristly) curled; flowers dull whitish to purplish; filaments conspicuously exserted (May - July).

Fruit: Capsule.

Snake River Phlox

Phlox colubrina **PHCO2**
Family - Polemoniaceae

Range: Snake River canyon of Oregon and Idaho from Hells Canyon to mouth of Grande Ronde River. A local endemic.

Habitat: Dry slopes, rim outcroppings, and palisades in the Snake River canyon and tributaries. Prefers rocky, gravelly soils.

Look Alikes: Differentiate from other phlox species which are erect and have long, linear leaves as follows: showy phlox (***Phlox speciosa***) - corolla lobes notched at tip; not in Snake River canyon; longleaf phlox (***P. longifolia***) - style longer than the stigmas; sticky phlox (*P. viscida*) - style longer than the stigmas; glandular.

Indicator Value: Type indicator for FEID-AGSP/PHCO2 and AGSP-POSA3/PHCO2 plant associations. Common in bluebunch wheatgrass dominated communities - AGSP-POSA3/ERPU, AGSP-POSA3/ASCU4, AGSP-POSA3 (granite); dry canyon shrublands (RHGL/AGSP, CELE/AGSP) and lower elevation FEID-KOCR plant communities.

Miscellany: A showy flower pleasing to springtime visitors in the Snake and lower Imnaha canyons.

C. Johnson

Snake River Phlox

Phlox colubrina **PHCO2**

Habit: Perennial taprooted forb with shrubby base (6-20 inches tall).

Stems: Glabrous.

Leaves: Linear (1-3 inches long).

Flowers: Cyme with leafy bracts; calyx membranes keeled; flowers pink (tube 8-13 mm long; lobes 10-20 mm long), oblanceolate; anthers included in tube; style short, not longer than the stigmas (April - May).

Fruit: 3-valved capsule.

Longleaf Phlox

Phlox longifolia **PHLO**
Family - Polemoniaceae

Range: Washington to southern California eastward to western Montana, western Wyoming, Colorado and New Mexico. Throughout the inland Pacific Northwest.

Habitat: Dry slopes, ridges, outcroppings from the canyon lowlands to mid montane elevations.

Look Alikes: Differentiate from other phlox species which are erect with long, linear leaves as follows: showy phlox (***Phlox speciosa***) - corolla lobes notched at tip; Snake River phlox (***P. colubrina***) - style shorter than the stigmas; not glandular; sticky phlox (***P. viscida***) - calyx membranes not keeled; very glandular.

Indicator Value: Found throughout the dry Idaho fescue dominated plant associations and the bluebunch wheatgrass plant associations. Also common beneath big sagebrush with fescue and/or bluebunch wheatgrass.

Miscellany: The most common and widespread phlox species in the inland Pacific Northwest. Sheep use the plant (especially the flowers). May increase with disturbance; especially on steep colluvial slopes.

C. Johnson

Longleaf Phlox

Phlox longifolia **PHLO**

Habit: Perennial taprooted forb with woody base; 4-16 inches tall.

Stems: Glabrous to hairy.

Leaves: Opposite, linear (3/4-3 inches long).

Flowers: Glandular cyme with leafy bracts; calyx membranes strongly keeled; petals pink to white (tube 10-18 mm long; lobes 7-15 mm long); obovate; anthers partly exserted; style long, several times longer than the stigmas (April - July).

Fruit: 3-valved capsule.

Oregon Twinpod

Physaria oregana **PHOR**
Family - Cruciferae

Range: Snake and lower Salmon River canyons of Idaho and Oregon; also in the Blue Mountains of southeastern Washington and northeastern Oregon.

Habitat: Dry gravelly slopes and "blowouts" at low elevations in the canyons and mountains.

Look Alikes: Differentiate from other twinpods (***Physaria* spp.**) as follows: common twinpod (***P. didymorpha***) - style 5-9 mm long; silicle strongly inflated; Geyer's twinpod (***P. geyeri***) - style 3-7 mm long; silicle small (less than 10 mm). Wallflowers (*Erysimum* spp.) and rockcresses (***Arabis* spp.**) have long fruits (siliques).

Indicator Value: Type indicator of the buckwheat - Oregon twinpod plant association.

C. Johnson

Oregon Twinpod

Physaria oregana **PHOR**

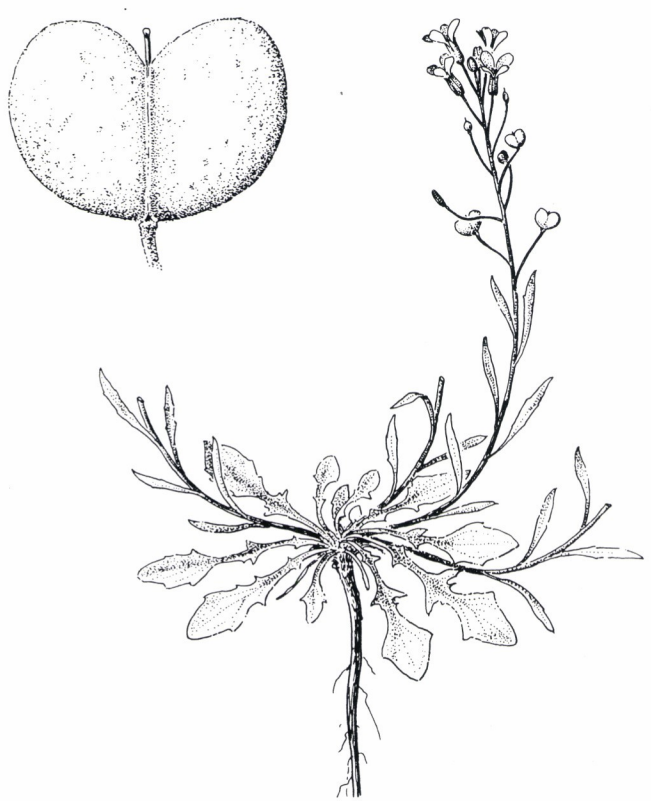
Habit: Perennial forb from an unbranched caudex; pubescence gives plant a gray cast.

Stems: Spreading prostrate to erect; finely pubescent (with stellate hairs); 2-8 inches long.

Leaves: Basal - oblanceolate to obovate (1-2 inches long); entire and toothed. Cauline - oblanceolate, entire.

Flowers: Raceme with ascending pedicels; flowers light yellow (8-12 mm long) (April - June).

Fruit: Silicle; broad (greater than 10 mm long); scarcely inflated; notched at top with 1-2 mm style.



Skunk-Leaved Polemonium

Polemonium pulcherrimum **POPU**

Family - Polemoniaceae

Range: Throughout the mountainous western United States.

Habitat: Moist, cool often shaded areas at high elevations.

Look Alikes: Other polemoniums can be differentiated as follows: sticky polemonium (***Polemonium viscosum***) and elegant polemonium (***P. elegans***) - corolla tube longer than calyx; western polemonium (***P. occidentale***) - tall (1-3 feet), single stem.

Indicator Value: Indicates cold, dry subalpine fir and whitebark pine plant associations. Severe regeneration difficulty.

Miscellany: Unpalatable to cattle; slightly palatable to sheep. Also known as "Jacob's ladder" from leaflet orientation. Emits a "skunky" odor on crushing of foliage - thus its common name.

C. Johnson

Skunk-Leaved Polemonium

Polemonium pulcherrimum **POPU**

Habit: Deciduous, erect, perennial forb; 12-20 inches tall; clustered stems from branched woody caudex.

Leaves: Alternate, deciduous, pinnately compound (11-15 leaflets); oval to orbicular; emits "skunky" odor on crushing.

Flowers: Blue with light yellow to white throat; showy; bell-shaped; borne in cymes (May - August).

Fruits: Capsule.

Alpine Fleeceflower

Polygonum phytolaccaefolium **POPH**
Family - Polygonaceae

Range: Alaska to California east to Idaho, western Montana, eastern Oregon and western Nevada.

Habitat: Subalpine to alpine dry meadows, talus slopes, rock slides, open slopes and ridges.

Look Alikes: Very distinctive at high elevations with its succulent, glabrous, tall stature.

Indicator Value: Disturbance indicator. Found beneath whitebark pine, subalpine fir, and in disturbed fescue grasslands at high elevations. A good soil binder.

Miscellany: Invades depleted high elevation grasslands and quickly colonizes after highly erosive events (landslides, avalanches). Usually avoided by livestock. Elk graze the flowering tops. After the first autumn frosts the plants turn orange-yellow, red to rusty-brown. Nez Perce roasted or boiled the roots; ground the seeds into flour.

C. Johnson

Alpine Fleeceflower

Polygonum phytolaccaefolium **POPH**

Habit: Perennial herb from a large branched crown and thick root (2-6 ft. tall).

Stems: Glabrous; erect, several stemmed and branched with a grooved stem.

Leaves: Shiny, lanceolate with entire, wavy margins; alternate, slightly reduced upwards (2 1/2 - 5 inches long); all leaves cauline.

Flowers: Panicles (terminal, axillary); flowers white to greenish-white; stamens 8; styles 3 (June - August).

Fruit: 3-sided achene (yellowish-brown); smooth.

Western Swordfern

Polystichum munitum **POMU**
Family - Polypodiaceae

Range: Abundant in and west of the Cascades; extending across northern Washington to northern Idaho and northwest Montana; occasional in northern Blue Mountains and northern Wallowa Mountains.

Habitat: Moist areas in grand fir sites where maritime climatic influence occurs.

Look Alikes: Holly fern (***Polystichum lonchitis***) - smaller, leaves up to 2 feet long, lower leaf segments smaller than middle ones; teeth of segments spread outward.

Indicator Value: Defines the grand fir/sword fern - ginger plant association.

Miscellany: Unpalatable. Used by florists for sprays and wreaths. Named for sword-like shape of leaflets.

C. Johnson

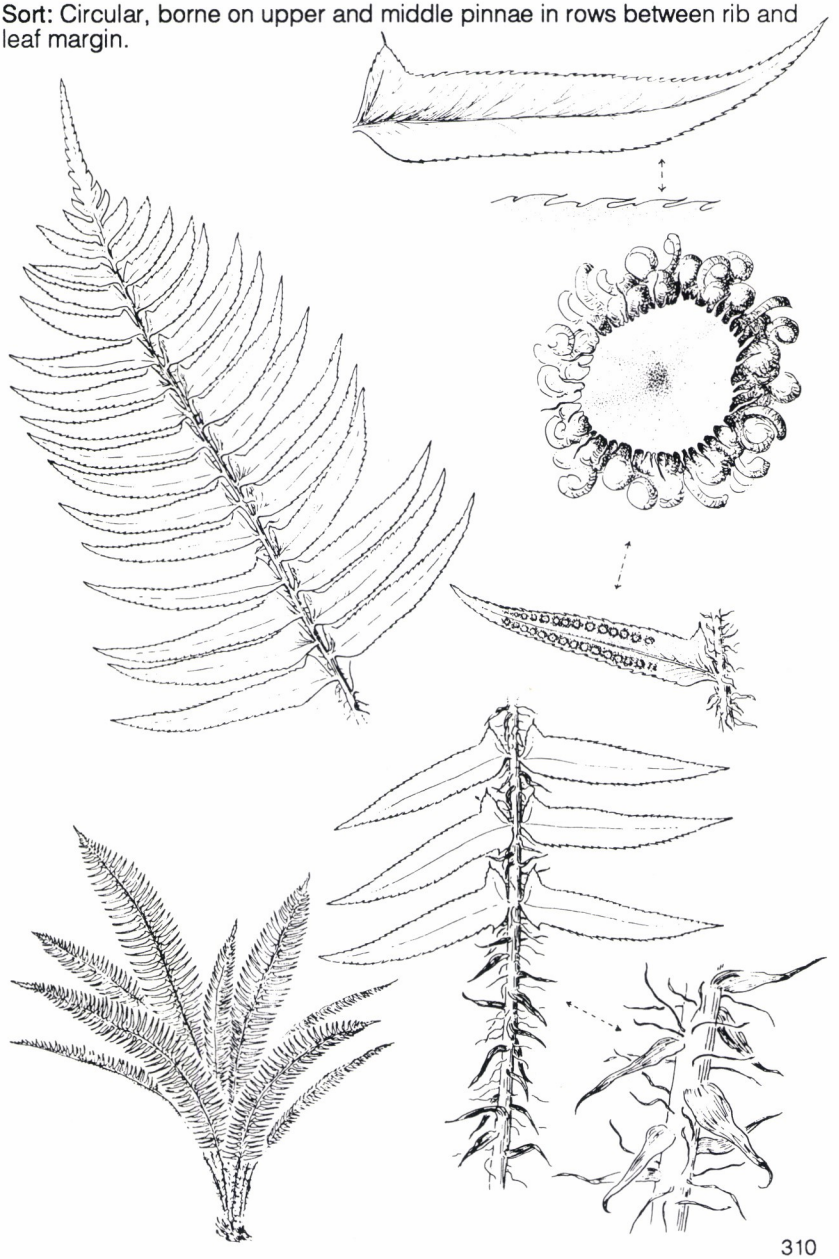
Western Swordfern

Polystichum munitum **POMU**

Habit: Large, perennial fern; tufted on short, stout caudex covered with reddish-brown scales.

Leaves: Evergreen, leathery, stiffly erect, lance-shaped (6-50 inches); 35-70 pinnae (1-6 inches long), basal lobe projects upward; teeth incurred and spiny.

Sort: Circular, borne on upper and middle pinnae in rows between rib and leaf margin.



Bracken Fern

Pteridium aquilinum **PTAQ**
Family - Polypodiaceae

Range: Widespread throughout the Pacific Northwest.

Habitat: Warm, dry mid elevation sites as invader and colonizer following fires, clearcutting, and burning (resists drought).

Look Alikes: Readily recognized.

Indicator Value: Pioneering species on clearcuts, road cuts and fills, and burns in the early seral stages of grand fir series plant associations.

Miscellany: Very resistant to fires; regenerates rapidly. Allelopathic. Poisonous to livestock if taken in quantity. Fiddleheads may be eaten after boiling. Use should be restricted to minimize possible toxicity accumulation over time.

C. Johnson

Bracken Fern

Pteridium aquilinum **PTAQ**

Habit: Medium to large, erect fern (2-4 feet tall); vigorously clonal; rhizomatous.

Leaves: Deciduous, single fronds; tripinnately compound blade (1-3 feet long); pinnules alternate; edges rolled under with dense hairs.

Sort: Enclosed by narrow, inrolled leaf margins.

Pink Wintergreen

Pyrola asarifolia **PYAS**
Family - Ericaceae

Range: Western United States, across Canada to NE North America.

Habitat: Moist, cool mid to upper elevations beneath shady closed canopies.

Look Alikes: Pink wintergreen leaves may be confused with the following: ginger (***Asarum caudatum***) - cordate to reniform leaf; round-leaved violet (***Viola orbiculata***) - thin, serrated leaf. Pink wintergreen has more leathery, larger, shinier leaves than the other wintergreens.

Indicator Value: Defines late seral true fir plant associations (ABLA2/LIBO2). Regeneration difficult.

Miscellany: Unpalatable. Waxy flowers are among the showiest.

C. Johnson

Pink Wintergreen

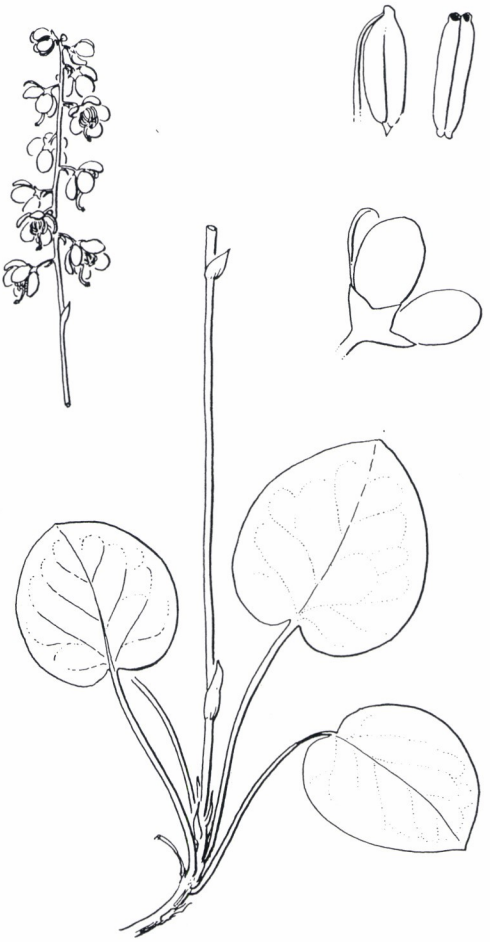
Pyrola asarifolia **PYAS**

Habit: Low evergreen, perennial forb (6-16 inches tall); rhizomatous.

Leaves: Basal, simple, circular to elliptic (1-3 inches wide); leathery; entire margin; shiny, dark green above and purplish beneath. No white mottling.

Flowers: Pink, rose, or purplish-red; waxy; strongly curved style; 10-25 flowers in elongate terminal raceme (June - September).

Fruit: Capsule.



Sidebells Pyrola

Pyrola secunda **PYSE**
Family - Ericaceae

Range: Widespread in North America.

Habitat: Cool, moist dark sites beneath dense tree canopies at mid to upper elevations.

Look Alikes: Sidebells pyrola has a leafy aerial stem, light green leaves, and flowers on one side of raceme which differentiates it from other wintergreens.

Indicator Value: Defines sites capable of supporting the true fir and mountain hemlock plant associations.

Miscellany: Unpalatable.

C. Johnson

Sidebells Pyrola

Pyrola secunda **PYSE**

Habit: Low, evergreen, perennial forb (2-6 inches tall); rhizomatous.

Leaves: Alternate, thin, shiny light green above and pale below; ovate to ovate-elliptic (1 1/2-2 1/2 inches long) on short petioles.

Flowers: White; straight style; borne on one-sided 6-20 flowered raceme (June - August).

Fruit: Dry, globose capsule.

Western Coneflower

Rudbeckia occidentalis **RUOC**
Family - Compositae

Range: Washington and Oregon to California; eastward to southwestern Montana, northwestern Wyoming, Idaho and Utah.

Habitat: Streambanks, terraces near streams; moist meadows and dry meadows from mid to high elevations in the mountains.

Look Alikes: Very striking with large rayless flowers, coarse large leaves. Found at higher elevations where forbs tend to be of smaller stature.

Indicator Value: Invades overgrazed high elevation meadows. Large patches indicative of extreme overgrazing. Found along trails at higher elevations on ridgetops and in mountain basins and stream bottoms where sheep driveways were used by too many animals over too many years.

Miscellany: Avoided by livestock. Increases as other palatable plants are grazed out. Horses will preferentially seek the flower heads.

C. Johnson

Western Coneflower

Rudbeckia occidentalis **RUOC**

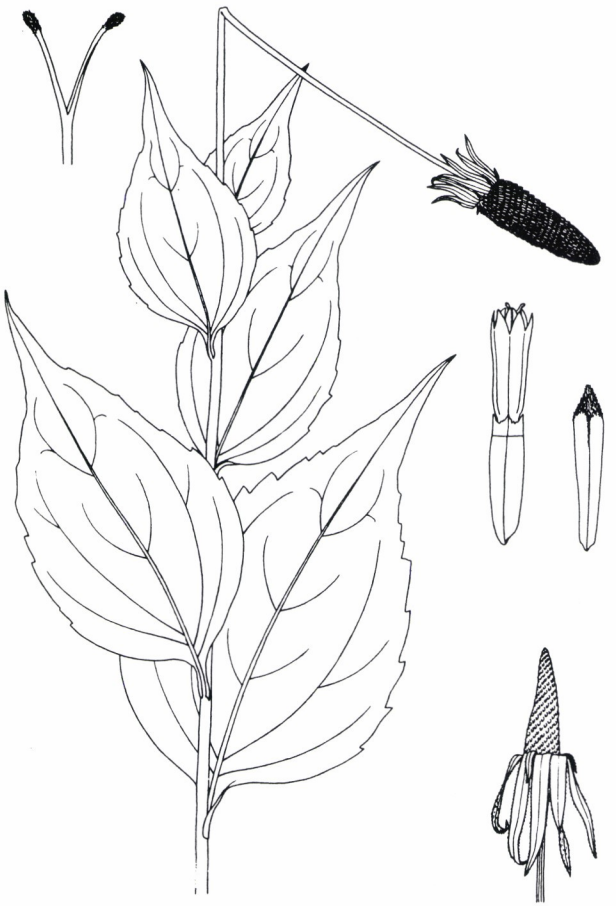
Habit: A coarse perennial forb (20 inches to 6 ft. tall).

Stems: Short hairy to glabrous.

Leaves: Alternate, simple, broadly ovate (up to 10 inches long and 6 inches wide); entire with some teeth; strongly petiolate below; cauline leaves stalkless with rounded or heart-shaped bases.

Flowers: Head from a long peduncle; dark brown to black disk elongating to cone-shape (up to 2 inches long); no ray flowers; involucral bracts herbaceous, unequal (June - August).

Fruit: Achene.



Narrowleaved Skullcap

Scutellaria angustifolia **SCAN**
Family - Labiatae

Range: Southern British Columbia to California east of the Cascades; eastward to northern and western Idaho.

Habitat: Rocky, gravelly slopes on dry exposures. Especially abundant on ravelly, scree and toeslope talus.

Look Alikes: Most likely to be confused with penstemons. Penstemons do not have square stems and the flowers do not occur in the axils of the leaves.

Indicator Value: Type indicator for the bluebunch wheatgrass - Sandberg's bluegrass/skullcap plant association. Also common in other dry, gravelly communities where bluebunch wheatgrass dominates (AGSP-POSA3/ASCU4, AGSP-POSA3/ERPU, AGSP-POSA3/PHCO2, AGSP-POSA3/OPPO). Found in dry, hot canyonland shrub communities (RHGL/AGSP, CERE2/AGSP, JUOC/FEID-AGSP).

Miscellany: "Skullcap" receives its name from a flap attached on the upper side of the calyx.

C. Johnson

Narrowleaved Skullcap

Scutellaria angustifolia **SCAN**

Habit: Perennial forb from rhizomes (4-12 inches tall).

Stems: Slender, erect, clustered; hairy with upward-pointing hairs; square stems.

Leaves: Opposite, entire; 3-5 nerved from base; elliptic to ovate (about 1 inch long), hairy.

Flowers: Solitary in leaf axils; borne in pairs; petals deep violet; calyx with a flap on upper side; spreading lower lip; palate with long white hairs (May - June).

Fruit: Nutlets.

Wormleaf Stonecrop

Sedum stenopetalum **SEST**
Family - Crassulaceae

Range: British Columbia to California east of the Cascades; east to western Montana; throughout the inland Pacific Northwest.

Habitat: Open, dry rocky, gravelly, sandy soil on grassy slopes, ridges, rocky outcrops and scablands.

Look Alikes: Lanceleaved stonecrop (*Sedum lanceolatum*) is often found growing with wormleaf stonecrop. Very similar in appearance but its leaves are not keeled and leaves do not contain bulbils; follicles erect at maturity.

Indicator Value: Common on scabland communities (AGSP-POSA3, ARRI/POSA3, POSA3-DAUN, ERDO/POSA3, ERST2/POSA3).

Miscellany: The most common and widely distributed stonecrop in the Pacific Northwest. Seldom used by livestock. The plant is able to persist in hot, dry conditions due to its waxy stems and leaves. Nez Perce ate stems and leaves when juvenile (late spring). The common name "wormleaf" is from the often crooked leaves. Readily takes to rock gardens.

C. Johnson

Wormleaf Stonecrop

Sedum stenopetalum **SEST**

Habit: Succulent rhizomatous perennial forb, glabrous; up to 7 inches tall.

Leaves: Basal rosette, linear, cylindrical, strongly keeled or nerved on back; deciduous at flowering time; upper cauline leaves with bulbils in axils; alternate.

Flowers: 5-parted in tight flat cymes; sepals lanceolate; yellow (sometimes purple-tinged) (May - July).

Fruit: Follicles; 5 pods spread outward at maturity.

Western Groundsel

Senecio integerrimus **SEIN**
Family - Compositae

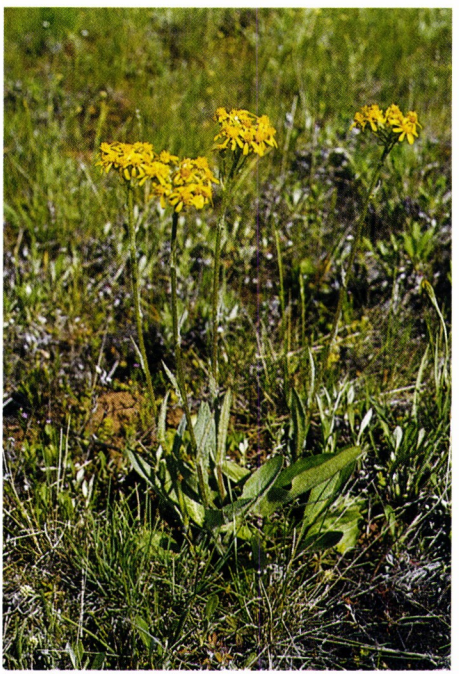
Range: Southern British Columbia to California eastward to Saskatchewan and Minnesota.

Habitat: Dry to moist foothills, valleys, ridges; at all mountainous elevations (especially prominent with ponderosa pine, juniper and big sagebrush).

Look Alikes: May be confused with arnicas (***Arnica* spp.**) - lower leaves are opposite. Differentiate from other groundsels (***Senecio* spp.**) as follows: arrowleaf groundsel (*S. triangularis*) - leaves triangular; tall groundsel (*S. serra*) - stem leaves as long as the lower leaves; mountain marsh butterweed (*S. sphaerocephalus*) - leaves entire, thin; black involucral bract tips; woolly groundsel (*S. canus*) - multiple stems; woolly gray stems and leaves.

Indicator Value: Increaser; especially on summer rangelands overgrazed by cattle. Found occasionally in bunchgrass dominated communities but more common to ponderosa pine climax communities (PIPO/CELE, PIPO/PUTR), western juniper/bitterbrush communities and shrublands dominated by mountain big sagebrush (ARTRV/FEID) and bitterbrush (PUTR/FEID-AGSP).

Miscellany: Fair early season forage for elk and cattle before it loses succulence. Sheep relish the plant. Known to concentrate alkaloids and to be poisonous to livestock. Normally not eaten in sufficient amount to cause poisoning problems except on depleted rangelands where other forage is less available.



C. Johnson

Western Groundsel

Senecio integerrimus **SEIN**

Habit: Stout perennial forb; fibrous roots from a very short, erect crown.

Stems: Solitary (8-28 inches tall); cobwebby to white woolly hairy when young - becoming glabrous as summer season progresses.

Leaves: Alternate, lance-shaped, petiolate at base, entire to irregularly toothed; blade and petiole 2 1/2-10 inches long; cauline leaves progressively smaller on the stem - becoming sessile.

Flowers: Heads about 1/2 inch in diameter; several in a congested flat-topped cluster; terminal head normally stalkless; rays and disk flowers yellow to yellow-orange; involucral bracts in one row with black tips (May - July).

Fruit: Round achene.

Arrowleaf Groundsel

Senecio triangularis **SETR**
Family - Compositae

Range: Widespread in mountains of the western United States.

Habitat: Cool, wet and cool, moist soils at upper elevations under spruce, subalpine fir, and as a riparian species.

Look Alikes: Easily recognized.

Indicator Value: Unbound water beneath Engelmann spruce and subalpine fir often associated with twisted stalk, meadowrue, tall bluebells (ABLA2/STAM).

Miscellany: Palatable to deer and elk; highly palatable to sheep.

C. Williams

Arrowleaf Groundsel

Senecio triangularis **SETR**

Habit: Tall, deciduous perennial forb (1-5 feet tall); clustered stems.

Leaves: Numerous, alternate, triangular-shaped (2-8 inches long); lower leaves large with long petioles; reduction in size upwards as leaves become sessile.

Flowers: Yellow; numerous heads in flat-topped inflorescence (June - September).

Fruit: Achene.

Sibbaldea

Sibbaldea procumbens **SIPR**
Family - Rosaceae

Range: Circumpolar species. Throughout the Pacific Northwest to California and Rocky Mtns. to Utah and Colorado.

Habitat: Moist meadows, moist alpine slopes and moist coniferous forests; usually near streams, meadows and lake shores.

Look Alikes: Distinctive with its 3 wedge-shaped leaves toothed at the end. May be confused with strawberries (***Fragaria*** **spp.**) but leaves are serrated on the sides and flowers are white.

Indicator Value: Increases with disturbance on subalpine lake shores, beneath spruce and subalpine fir at campsites, and along trails.

Miscellany: Its aggressive mat-forming habit makes it a good candidate for rehabilitation of trampled, compacted subalpine sites.

C. Johnson

Sibbaldea

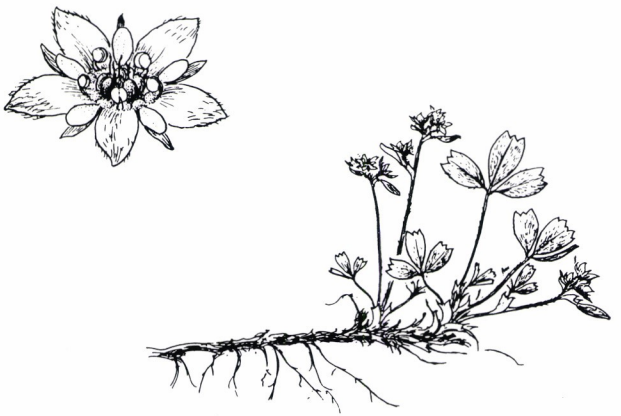
Sibbaldea procumbens **SIPR**

Habit: Perennial forb. Mat-forming from strong rhizomes.

Leaves: Petioled; arising from horizontal stems; 3 leaflets - wedge-shaped to obovate (1/2-3/4 inch long) with 3-5 teeth at apex; large, brown stipules.

Flowers: Flowering stems 2-3 inches tall with 2-15 flowers in a cyme; petals yellow-about half as long as sepals; 5 stamens alternate with the petals (June - August).

Fruit: Achene (stipitate).



Western False Solomon's Seal

Smilacina racemosa **SMRA**
Family - Liliaceae

Range: Widespread throughout the United States.

Habitat: Warm moist to warm dry habitats in relatively open forested stands; often on outcroppings.

Look Alikes: Readily confused with the following plant species: starry false Solomon's seal (***Smilacina stellata***) - few-flowered raceme; leaves 2-6 inches long; narrower; twisted stalk (***Streptopus amplexifolius***) - branched; clasping leaf bases; wartberry fairybells (***Disporum trachycarpum***) - branched; rounded leaf bases.

Indicator Value: Douglas-fir (PSME/ACGL-PHMA) and grand fir (ABGR/ACGL, ABGR/VAME) plant associations; steep slope orientation.

Miscellany: Unpalatable. Berries used by grouse. Native Americans used berries to prevent scurvy; too many berries results in laxative reaction. Rootstocks make a good pickle.

C. Johnson

Western False Solomon's Seal

Smilacina racemosa **SMRA**

Habit: Mid sized (1-3 feet tall) deciduous, perennial forb; strongly rhizomatous.

Stem: Erect, unbranched, green; arched or curving downward.

Leaves: Alternate, simple, sessile, lanceolate (3-8 inches long); parallel venation; slightly clasping.

Flowers: Many, small, white; terminal panicle up to 5 inches long (April - July).

Fruit: Globose berry (1/2 inch or smaller); green-brown to red.

Starry False Solomon's Seal

Smilacina stellata **SMST**
Family - Liliaceae

Range: Widespread throughout the United States.

Habitat: Cool, moist habitats in closed canopy forests at mid elevations.

Look Alikes: Readily confused with the following plant species: western false Solomon's seal (***Smilacina racemosa***) - many flowered panicle; leaves 3-8 inches long; broader; twisted stalk (***Streptopus* spp.**) - branched; clasping leaf bases; fairy bells (***Disporum* spp.**) - branched; rounded leaf bases.

Indicator Value: Cool, moist, shaded subalpine fir (ABLA2/CLUN, ABLA2/LIBO2) and grand fir (ABGR/CLUN, ABGR/TABR/CLUN) plant communities.

Miscellany: Unpalatable. Berries are edible - but have laxative reactions. Grouse use the berries.

C. Johnson

Starry False Solomon's Seal

Smilacina stellata **SMST**

Habit: Low (8-24 inches tall) deciduous perennial forb; rhizomatous.

Stem: Erect, unbranched, green; arched.

Leaves: Alternate, simple, sessile, lanceolate (2-6 inches long); parallel venation; slightly clasping.

Flowers: Few (5-10), small, white, up to 3-inch long terminal raceme; rachis of inflorescence is "ziz-zag" (May - June).

Fruit: Globose berry (less than 1/2 inch); greenish yellow turning blackish.

Twisted Stalk

Streptopus amplexifolius **STAM**
Family - Liliaceae

Range: Widespread throughout the United States.

Habitat: Wet, moist sites at mid elevations where soils are waterbound.

Look Alikes: Readily confused with the following species: wartberry fairybells (***Disporum trachycarpum***) - rounded leaf bases; not clasping; western false Solomon's seal (***Smilacina racemosa***) - unbranched; terminal panicle; starry false Solomon's seal (***S. stellata***) - unbranched; terminal raceme.

Indicator Value: Indicator for the ABLA2/STAM plant association.

Miscellany: Berries eaten by Native Americans and used by grouse. Unpalatable. May have laxative properties.

K. Urban

Twisted Stalk

Streptopus amplexifolius **STAM**

Habit: Tall (2-4 feet) deciduous perennial forb; rhizomatous.

Stem: Erect, branched, green.

Leaves: Alternate, simple, sessile, ovate, acuminate tips; 2-5 inches long, parallel venation; cordate clasping leaf bases.

Flowers: Greenish-white, 3-merous, bell-shaped; 1 to 2 flowers on "twisted stalked" pedicels beneath each leaf (May - July).

Fruit: Oblong, bright yellow-orange, translucent berry.

Western Meadowrue

Thalictrum occidentale **THOC**
Family - Ranunculaceae

Range: Throughout the Pacific Northwest and Rocky Mountains.

Habitat: Wide range of habitats from warm, moist and warm, dry at mid elevations to cool, dry and cool, moist at upper elevations.

Look Alikes: Leaves of western meadowrue can be confused with the following: columbines (***Aquilegia*** **spp.**) - leaves less dissected; leaflets larger; prominent veins; Fendler's meadowrue (***Thalictrum fendleri***) - achenes erect; stigma not purplish.

Indicator Value: Defines the cool, moist end of Douglas-fir series (PSME/ACGL-PHMA) and common throughout true fir series plant associations. Increaser with disturbance. Most prominent in mid seral stages.

Miscellany: Unpalatable. Plants are dioecious.

C. Johnson

Western Meadowrue

Thalictrum occidentale **THOC**

Habit: Mid sized (1-3 foot) deciduous, dioecious perennial forb.

Stems: Glabrous, slender.

Leaves: Alternate, 3-4 times ternate; leaflets rounded, three lobed and 2-3 times toothed or lobed; horizontal orientation; green above, pale below.

Flowers: Inconspicuous, greenish-white, borne in a panicle; stigma purplish (May - July).

Fruits: Spindle-shaped achene (three prominent veins on side).

Golden Pea

Thermopsis montana **THMO**
Family - Leguminosae

Range: British Columbia to California; throughout the Pacific Northwest; from Montana to Colorado in the Rockies.

Habitat: Well-drained sandy soils to wet meadows and streamsides.

Look Alikes: Lupines (*Lupinus* spp.) - leaflets 5 or more. Clovers (*Trifolium* spp.) - flowers in round to oral heads. Vetches (*Vicia* spp.) and peavines (*Lathyrus* spp.) - have tendrils off terminal leaflet. Round leaved golden pea (*Thermopsis rhombifolia*) - less than 2 ft. tall; pods spreading (not erect).

Indicator Value: Increases with disturbances as palatable and desired plants are overgrazed. Commonly found in the northern Blue Mountains in abundance following clear cuts, burns and overgrazing beneath spruce and grand fir in grand fir plant associations. Indicative of mid seral stages in the cool, moist grand fir plant associations.

Miscellany: Avoided by livestock (unless it dominates overgrazed rangelands). May be toxic to cattle and humans. A nitrogen-fixing legume.

C. Johnson

Golden Pea

Thermopsis montana **THMO**

Habit: Perennial forb (2-3 ft. tall); rhizomatous (patch forming).

Leaves: Alternate; trifoliate (up to 4 inches long) with large ovate stipules.

Flowers: Golden yellow pea-like flowers in a dense, erect raceme (up to 12 inches long) (May - August).

Fruit: Pod (straight, erect, hairy (2-3 inches long).

Coolwort Foamflower

***Tiarella trifoliata* (var. *unifoliata*)** **TITRU**
Family - Saxifragaceae

Range: Widespread in Pacific Northwest.

Habitat: Cool, moist streamsides and bottom locations (often under spruce).

Look Alikes: Mitreworts (***Mitella* spp.**) - capsules are saucer-shaped; goldthread (***Coptis occidentalis***) - shiny leaves.

Indicator Value: Indicative of spruce-dominated bottoms and late seral ABLA2/CLUN plant communities.

Miscellany: Unpalatable. Common name "foamflower" derived from the gross appearance of the inflorescence.

C. Johnson

Coolwort Foamflower

***Tiarella trifoliata* (var. *unifoliata*)** **TITRU**

Habit: Low to mid sized (8-20 inches) deciduous, perennial forb; rhizomatous.

Leaves: Simple, 3-5 lobed (2-3 inches long).

Flowers: White, 5-merous, bell-shaped in elongate panicles (June - August).

Fruit: Conspicuous, unequally two-valved capsule.

Tonella

Tonella floribunda **TOFL2**
Family - Scrophulariaceae

Range: Snake River canyon and tributaries in southeastern Washington, northeastern Oregon and adjacent Idaho.

Habitat: Open, rocky, seepy places in the canyons. Commonly found on toeslope talus along streams, in ravines and below rim outcroppings where spring moisture abounds.

Look Alikes: The opposite tri-parted linear leaves may appear whorled. Without flowers the plant could be mistaken for bedstraw (***Galium aparine***). Bedstraw has hooked hairs on the stem and readily clutches to fabric. The plant is singular in appearance when the small, delicate yet showy flowers emerge.

Indicator Value: Very prolific, especially on overgrazed bunchgrass slopes at lower elevations in the canyons. Especially diagnostic of degraded Idaho fescue - prairie junegrass communities on northerly slopes at low elevations.

Miscellany: The flowers are especially beautiful when viewed individually. When in flower steep north-facing bunchgrass slopes at lower elevations in the canyon appear to be smokey-pink from the bluish-pink cast.

C. Johnson

Tonella

Tonella floribunda **TOFL2**

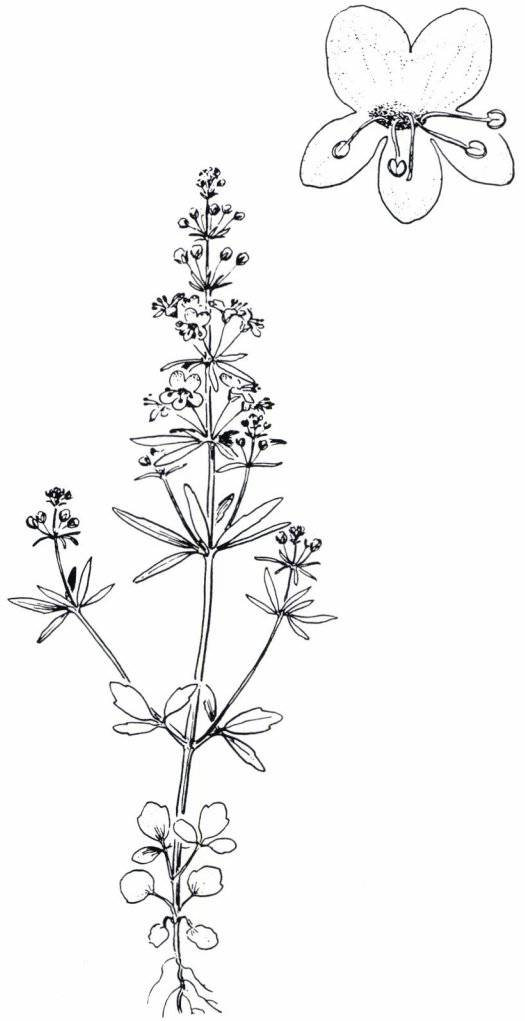
Habit: Annual forb (4-14 inches tall).

Stems: Branched; glabrous below; becoming glandular above.

Leaves: Opposite; glabrous on short petioles; 3-parted with entire, lance-elliptic leaflets about 1 1/2 inches long; lowermost leaves may be simple; leaves of inflorescence may be entire also.

Flowers: Borne in leaf axils on slender, glandular pedicels; flowers showy (6-12 mm wide); corolla blue, pink-blue, blue-purple and white; rotate, stamens 4 (exserted with pubescent filaments) (April - June).

Fruit: Capsule (turgid).



Yellow Salsify, Oysterplant

Tragopogon dubius **TRDU**
Family - Compositae

Range: Naturalized alien (from Europe) established over much of the United States.

Habitat: Relatively dry places (roadsides, dry meadows).

Look Alikes: Other ligulate flowers with milky juice. Differentiate salsify based on stature (usually 2-3 ft. tall), grass-like leaves with long tangled hairs (especially in the axils), long linear involucral bracts surpassing the flowers.

Indicator Value: Disturbance. Invades grasslands on trail sluff and in interspaces from trampling and overuse. Prominent in Idaho fescue plant associations, on deeper soils at higher montane elevations and on ridgetops (FEID-KOCR - ridges, mounds, high elev.); FEID-AGSP (LUSE, BASA, PHCO2); ARTRV/FEID; SYOR mounds.

Miscellany: Roots can be eaten raw or cooked (taste like parsnips or oysters). Native Americans chewed gum made from the milky juice and drank the juice for indigestion.

C. Johnson

Yellow Salsify, Oysterplant

Tragopogon dubius **TRDU**

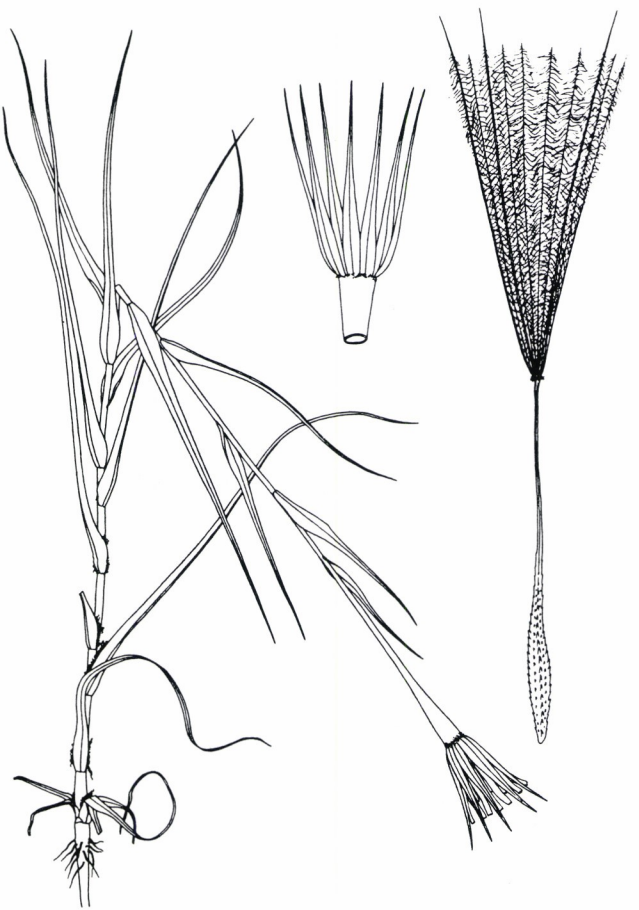
Habit: Biennial forb (sometimes an annual) 12-40 inches tall; taprooted; milky juice.

Stems: Stout, hollow with milky sap.

Leaves: Alternate, linear, entire, tapering uniformly to a tip; covered with long, tangled fine hairs when young - becoming glabrous; tuft of woolly hair in leaf axils.

Flowers: Peduncles inflated below the heads (up to 3 inches wide); all ligulate (rays); pale to greenish yellow; involucral bracts exceed the rays; flowers open in the morning; close in p.m. (May - July).

Fruit: Beaked achenes with feathery pappus ("parachute" for seed).



False Bugbane

Trautvetteria caroliniensis **TRCA3**
Family - Ranunculaceae

Range: Widely distributed in North America and Japan.

Habitat: Cool, wet sites at upper elevations.

Look Alikes: Very distinctive, but could be confused with globeflower (**Trollius laxus**) - fruit a follicle.

Indicator Value: Type indicator for ABLA2/TRCA3 and ABGR/TRCA3 plant associations. Found in ABLA2/STAM and ABGR/CLUN (wet microsites).

Miscellany: Unpalatable. The common name "bugbane" may be due to toxicity of plant.

C. Williams

False Bugbane

Trautvetteria caroliniensis **TRCA3**

Habit: Erect, tall (20-32 inches) deciduous, perennial forb; rhizomatous.

Leaves: Basal; long-petiolate, wide (4-10 inches) palmately divided blade with 5 or more lobes; cauline - alternate, short petiolate.

Flowers: Inconspicuous, white to greenish, borne in terminal corymbs (May - August).

Fruit: Four-angled achene with hooked style.

Long-Stalked Clover

Trifolium longipes **TRLO**
Family - Leguminosae

Range: British Columbia south to California on both sides of Cascades; Rocky Mountains from Montana to Utah and Colorado.

Habitat: Wet meadows, streamsides and coniferous forest.

Look Alikes: Difficult to distinguish without the flowers from other clovers (*Trifolium* spp.) in the forest. Dutch or white clover (*T. repens*) - white flowers; leaves and calyx not hairy. Red clover (*T. pratense*) - red flowers.

Indicator Value: Increases with trampling disturbance beneath forest canopies. Found in all coniferous forest series from subalpine fir to ponderosa pine. It is especially common where elk and cattle have congregated for thermal cover and ground has been disturbed. Douglas-fir (PSME/CARU and PSME/PHMA) and grand fir (ABGR/TABR/CLUN, ABGR/LIBO2) communities frequently contain this clover.

Miscellany: Very nutritious. Nitrogen-fixing legume. Provides high quality forage to livestock and wildlife. Foliage used by marmots, rabbits. Seeds are eaten by blue and ruffed grouse, mountain and valley quail. Edible greens (cooked after soaking in saltwater); tea from the dried flowers. Can bloat grazing animals and humans if eaten in abundance.

C. Johnson

Long-Stalked Clover

Trifolium longipes **TRLO**

Habit: Perennial forb with a taproot and long, slender rhizomes. Patch forming.

Stems: Erect to trailing (2-12 inches tall).

Leaves: Trifoliate (3 leaflets), hairy; elliptic to lanceolate (3/4-2 inches long; serrated to entire; narrow leaflike stipules.

Flowers: Heads are terminal, globose on long peduncles; yellow-white to pinkish-white to white; calyx hairy (May - August).

Fruit: Pods 1-4 seeded.

Bighead Clover

Trifolium macrocephalum **TRMA**
Family - Leguminosae

Range: Central Washington (Columbia Basin) throughout eastern Oregon, Nevada and western Idaho.

Habitat: Rocky meadows, ridges and scablands, seepy slopes and grassy slopes beneath ponderosa pines; sagebrush desert.

Look Alikes: Very distinctive. Differentiated from other clovers by the large flowers, large stipules, and the leaflets (often greater than 3 and up to 9). Unlike other clovers, this species inhabits scablands.

Indicator Value: Especially common on scablands in the following communities (POSA3-DAUN, ARRI/POSA3, ERST2/POSA3) and on low sagebrush sites with deeper soils. Increases on scablands with surface disturbance. May form extensive colonies due to rhizomatous spread.

Miscellany: A nitrogen-fixing legume. Receives its species name "macrocephalum" for the large flower heads which are striking. An excellent forage plant. Used by deer, sheep, cattle, marmots and rabbits. Seeds are eaten by grouse, quail and chukars. May be cooked and eaten as a green. Nez Perce made a tea from its dried heads; ate the plant raw or cooked.

C. Johnson

Bighead Clover

Trifolium macrocephalum **TRMA**

Habit: Perennial forb with thick roots and extensive rhizomes; patch-maker.

Stems: Thick, erect (4-8 inches tall); hairy; stipules ovate to lanceolate with jagged margins.

Leaves: Trifoliate (3 leaflets) - but can have up to 9; thick and leathery; oblanceolate to obcordate (up to 1 inch long).

Flowers: Heads; solitary at end of long peduncle; round to ovate (1-2 inches); calyx feathery; flowers pinkish white to rose-pink (April - June).

Fruit: Glabrous pod with 1 seed.

Sitka Valerian

Valeriana sitchensis **VASI**
Family - Valerianaceae

Range: Eastern Washington, western Montana, northeastern Oregon, central Idaho.

Habitat: Cool, moist to cold, moist sites at high elevations with heavy snowpack.

Look Alikes: Very distinctive. Tobacco-root (***Valeriana edulis***) occurs at lower elevations; leaves lack a defined petiole; inflorescence a panicle.

Indicator Value: Indicator of the subalpine fir series (ABLA2/VASC, ABLA2/VAME).

Miscellany: Sites will be difficult to regenerate. Highly palatable to sheep, deer, and elk. Roots are foul smelling and tasting.

C. Johnson

Sitka Valerian

Valeriana sitchensis **VASI**

Habit: Deciduous, tall (1-4 feet) perennial forb; fibrous-rooted from branched caudex.

Leaves: Opposite, odd-pinnately compound; toothed margins; terminal leaflet largest; most are cauline with petioles.

Flowers: White, funnel-shaped, borne in rounded compact inflorescence (June - August).

Fruit: Glabrous, plumed achenes.

California False Hellebore

Veratrum californicum **VECA**

Family - Liliaceae

Range: Western Washington to southern California, east to Idaho and Montana, south in the Rockies to Colorado, New Mexico and Mexico.

Habitat: Meadows, moist woodlands, streamsides from the steppe to the subalpine. Most common at mid mountain elevations (***Veratrum viride*** takes over at higher elevations).

Look Alikes: Green false hellebore (***V. viride***) - lower panicle branches droop; flowers green to yellow-green.

Indicator Value: Invades on highly disturbed dry and wet meadows and into the adjacent moist grasslands and forests.

Miscellany: Somewhat resemble corn stalks. Poisonous (alkaloids) to all livestock; but sheep are usually more affected (lamb deformities). May be grazed in spring and early summer without serious consequences. Pharmaceutically used for slowing heartbeat and lowering blood pressure. If eaten by humans - can also be poisonous. Nez Perce dried ***V. viride*** root, made it into a powder and sniffed it to sneeze and clear nasal passages.

C. Johnson

California False Hellebore

Veratrum californicum **VECA**

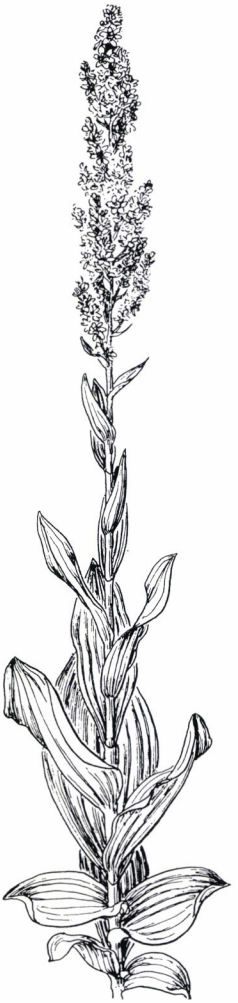
Habit: Perennial forb with fibrous roots and thick rhizomes. Forms dense patches.

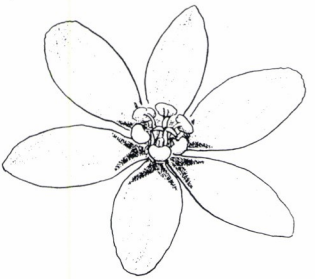
Stems: Stout, tall (3-7 ft.); glabrous below and woolly hairy above.

Leaves: Alternate, simple, entire, large (8-12 inches long), sheathing at base; parallel-veined; progressively reduced in size upwards.

Flowers: Dense panicle (12-24 inches long); stiffly erect with branches spreading or ascending (not drooping); flowers greenish-white to white; 6-parted (June - August).

Fruit: Capsule (glabrous, ovoid, straw-colored).





Common Mullein

Verbascum thapsus **VETH**

Family - Scrophulariaceae

Range: Alien (native to Eurasia); established throughout the United States.

Habitat: Roadsides; highly disturbed dry, gravelly or sandy locations; river bottoms.

Look Alikes: Moth mullein (***Verbascum blattaria***) - glabrous below; leaves green (not densely hairy); filaments covered with purple-knobbed hairs.

Indicator Value: An important early seral species in the grand fir series on bare soils (following clear cutting). Indicative of highly disturbed sites with bare mineral soil exposure.

Miscellany: Seeds provide winter food for birds. The woolly "flannel" leaves are protected through the 1st winter and protect it from water loss the 2nd year before the flowering stalk is produced. After the 2nd year the plants die leaving the standing stalks to give character to the roadside landscape. A prolific seed producer but does not aggressively invade lesser disturbed adjacent vegetation. Pharmaceutically the leaves produce medicines for controlling inflammation and lotions to soothe the skin.

C. Johnson

Common Mullein

Verbascum thapsus **VETH**

Habit: Biennial forb (basal rosette 1st year; erect flowering stem 2nd year) from a coarse taproot. Very densely covered with velvety hairs.

Stems: Densely hairy (up to 7 ft. tall); unbranched.

Leaves: Basal - broadly oblanceolate (16 inches long; 5 inches wide); entire; gray-green cauline - many, progressively reduced upwards; clasping.

Flowers: Dense spikelike raceme; corolla 5-lobed, yellow; 3 filaments dense yellow-hairy; 2 filaments longer and glabrous; anthers orange (June - August).

Fruit: Capsule (ovoid); 2-celled with many small brown seeds.

Woodland Violet

Viola glabella **VIGL**
Family - Violaceae

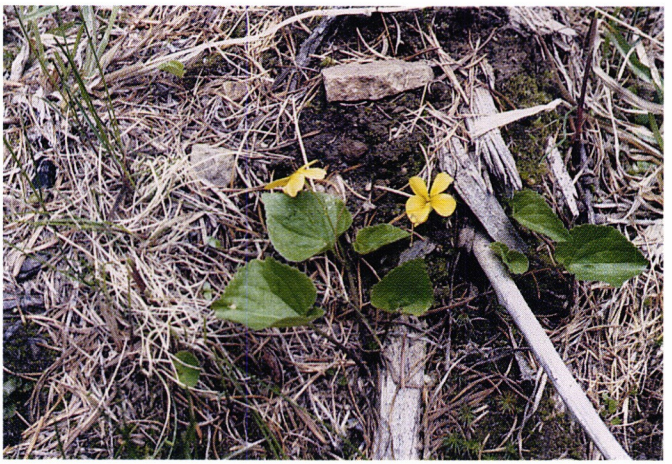
Range: Throughout the Pacific Northwest.

Habitat: Mesic wooded and forested sites at mid elevations.

Look Alikes: Differentiate the following violets as follows: round-leaved violet (***Viola orbiculata***) - round leaf and apex; early blue violet (***V. adunca***) - ovate leaf; purple flowers.

Indicator Value: Indicative of Douglas-fir and grand fir sites.

Miscellany: Unpalatable. Leaves may be used for salads - high in Vitamin C.



C. Williams

Woodland Violet

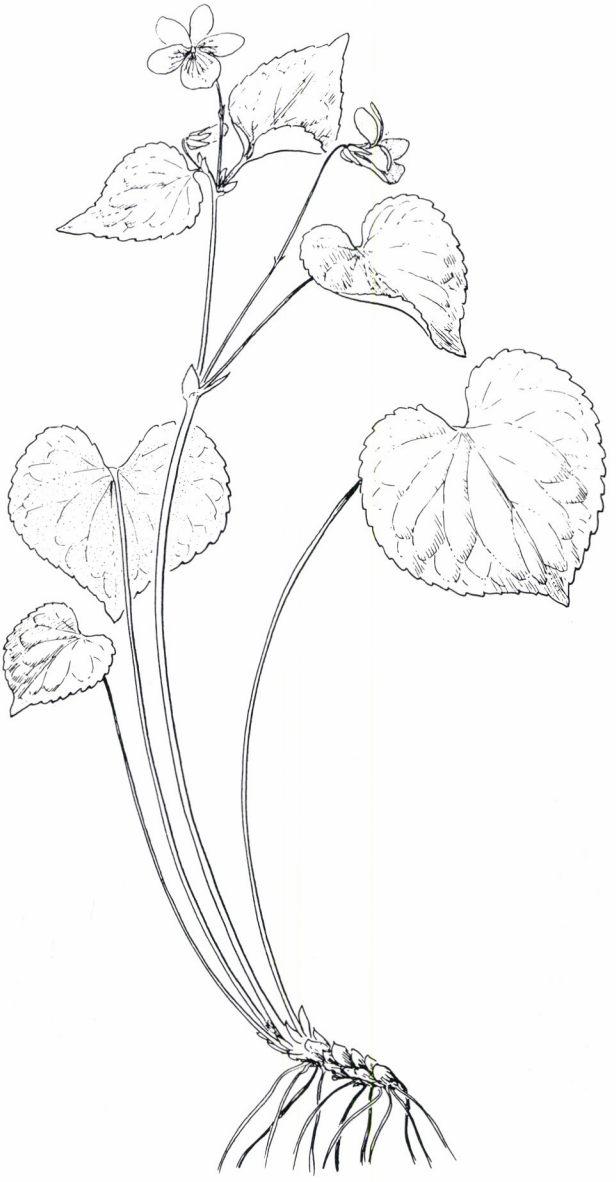
Viola glabella **VIGL**

Habit: Erect, deciduous, low perennial forb (up to 12 inches tall); fleshy rootstock.

Leaves: Ovate-cordate to reniform, 1-3 inches wide, with acute apex.

Flowers: Yellow with lower 3 petals purple-veined; leafy aerial flowering stems (March - July).

Fruit: Exploding capsules.



Round-Leaved Violet

Viola orbiculata **VIOR2**
Family - Violaceae

Range: Olympics, Cascades to northern Oregon; northern Idaho, northwest Montana, and northeastern Oregon.

Habitat: Cool, moist shaded sites at mid and upper elevations.

Look Alikes: Differentiate the following violets as follows: woodland violet (*Viola glabella*) has cordate-reniform leaves and pointed leaf tips; early blue violet (*V. adunca*) has ovate leaves with acute tip.

Indicator Value: Defines the true fir (ABLA2 and ABGR) plant associations.

Miscellany: Unpalatable. Use leaves for salad greens - high in Vitamin C.

C. Johnson

Round-Leaved Violet

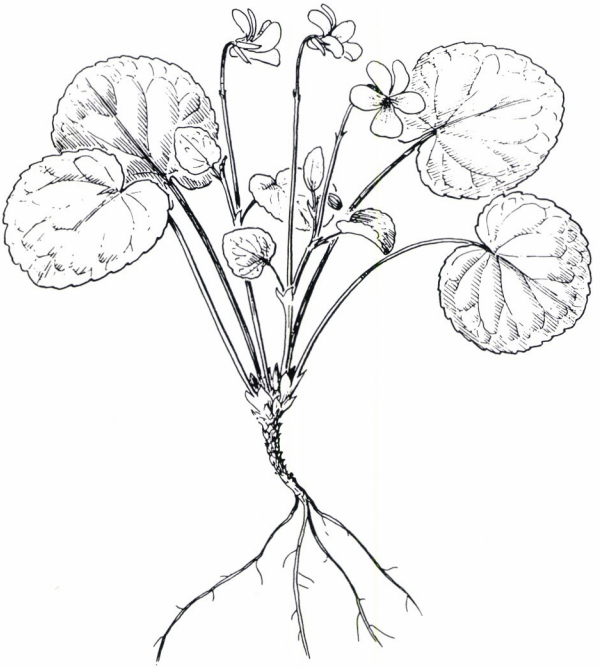
Viola orbiculata **VIOR2**

Habit: Erect, deciduous, low perennial forb (2 inches tall); short rootstock without stolons; old petiole bases exposed.

Leaves: Orbicular (round) with cordate base and round apex; glabrous, thin, small (1-2 inches wide).

Flowers: Lemon-yellow to golden; lower three petals purple-veined (May - August).

Fruit: Exploding capsule.



Goosefoot Violet

Viola purpurea **VIPU**
Family - Violaceae

Range: North central Washington to California; east to Montana, Wyoming, and Colorado.

Habitat: Dry, warm forested and nonforested sites.

Look Alikes: A very distinctive violet with small, deeply toothed leaves having purplish coloration.

Indicator Value: Found in ponderosa pine and nonforested communities where drought limits regeneration and reforestation opportunities.

Miscellany: Unpalatable.

C. Johnson

Goosefoot Violet

Viola purpurea **VIPU**

Habit: Erect, deciduous, low perennial forb (2-6 inches tall); shallow scaly rhizome.

Leaves: Thick, fleshy, ovate (1/2-1 1/2 inches wide); deeply toothed; glaucous-green and purplish or purple veined.

Flowers: Yellow with brown pencilling (May - August).

Fruit: Exploding capsule.

Mule's Ears

Wyethia amplexicaulis **WYAM**
Family - Compositae

Range: Central Washington to Nevada; western Montana to Colorado.

Habitat: Open, seepy hillsides, dry meadows; from the foothills to moderate elevations in the mountains. Occurs beneath open growing ponderosa pine and Douglas-fir.

Look Alikes: Balsamroots (***Balsamorhiza* spp.**) - leaves not elliptic nor glossy (resin coated), and flower stalks are leafless; common sunflower (***Helianthus annuus***) - cauline leaves opposite; little sunflower (***Helianthella uniflora***) - cauline leaves opposite; white wyethia (***Wyethia helianthoides***) - white rayflowers.

Indicator Value: Increases on overused rangelands. Forms dense stands on relatively localized sites; or scattered throughout a grassy slope or beneath a woodland.

Miscellany: Due to the leathery leaves forage value is low. Floral heads are eaten by all livestock, deer and elk. Named for Capt. Nathaniel J. Wyeth - established first fur trading post in Pacific Northwest (Fort Hall). Bears and mule deer use the plant in early spring when it is succulent. Sharp tailed grouse and Columbian ground squirrels use seeds and flowers. Nez Perce used the roots (boiled and chopped) for medicinal qualities.

C. Johnson

Mule's Ears

Wyethia amplexicaulis **WYAM**

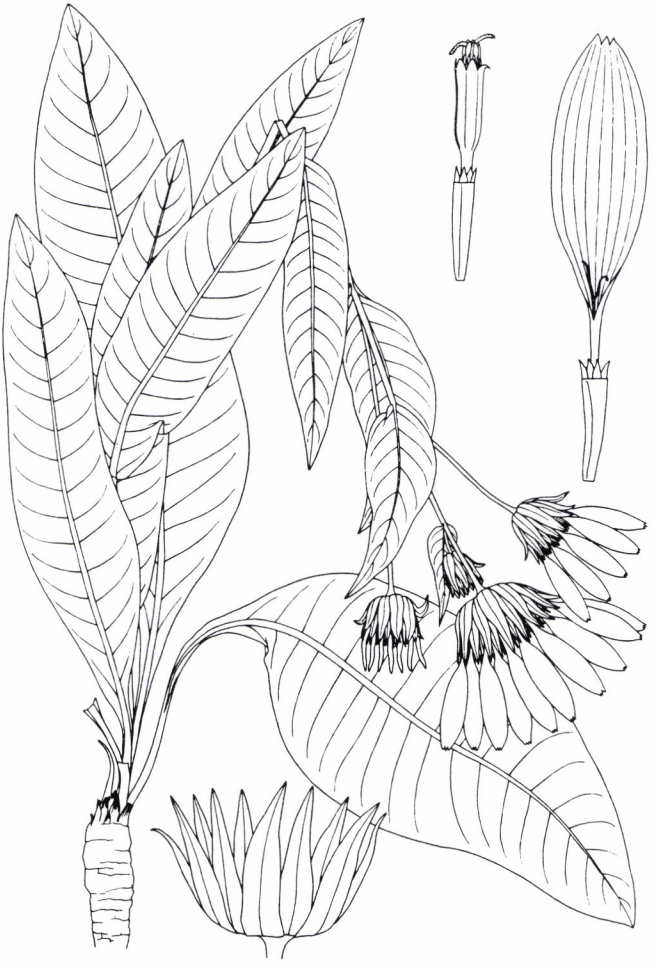
Habit: Perennial forb. Erect; from a simple or branched caudex and a taproot.

Stems: Solitary, glabrous, stout (12-32 inches tall).

Leaves: "Varnished," alternate, leathery, entire. Basal- petiolate; elliptic to lance-shaped (8-24 inches long; 2-6 inches wide). Cauline - smaller, sessile, ovate, clasping (4-10 inches long; 1-2 inches wide).

Flowers: Solitary heads; large (1 1/2-4 inches in diameter); involucral bracts, resinous and herbaceous; ray flowers 8-18, yellow; disk flowers yellow (May - June).

Fruit: Oblong achene (4 angled).



Meadow Death Camas

***Zigadenus venenosus* (var. *gramineus*)** **ZIVEG**
Family - Liliaceae

Range: British Columbia south along east base of Cascades to north central Oregon; east to Alberta and Saskatchewan; south in the Rockies to Colorado. This is the common variety in eastern Washington, eastern Oregon, north Idaho and Montana.

Habitat: Openings in the lower montane forest, sagebrush slopes and grassy slopes and ridges. Also found in moist meadows, vernal depressions and seepages with common camas (***Camassia quamash***).

Look Alikes: Differentiation is difficult with common camas and other death camases based on leaf comparison. Common camas (***Camassia quamash***) has purple to blue flowers; glaucous zigadenus (***Zigadenus elegans***) - larger flower (tepal greater than 8 mm); panicled death camas (***Z. paniculatus***) - inflorescence a panicle; staminate flowers at inflorescence base.

Indicator Value: Defines seepages, moist meadows where spring moisture is abundant; then drys with summer drought. Especially common on seepages in FEID-KOCR and FEID-AGSP plant associations where basalt rims orient subsurface flow. An increaser with overgrazing.

Miscellany: Greatest rangeland use of the plant is in spring when its succulent. Sheep are primary class of livestock lost to poisoning from the high concentrations of alkaloids. Fatal losses greatest on early use of spring rangeland where death camas occurs. Native Americans used crushed bulbs for a poultice to treat bruises and sprains. Bulbs poisonous to humans. Reduced by annual summer burns.

K. Urban

Meadow Death Camas

***Zigadenus venenosus* (var. *gramineus*)** **ZIVEG**

Habit: Bulbous perennial. Bulb ovoid (up to 1 inch long). Dark bulb coat.

Stems: Slender (8-20 inches tall); scapose.

Leaves: Mostly basal (up to 12 inches long) with few cauline leaves (progressively reduced upward); width 4-8 mm; linear, entire; keeled with sharp pointed tips.

Flowers: Raceme (4-8 inches long), with some branching at raceme base; pedicels strongly ascending; flowers white to cream-colored; tepals unequal - outer are ovate and pointed at tip; inner are longer (to to 8 mm). Gland yellowish-green at tepal base (broader than high). Stamens equal the perianth. All flowers perfect (pistillate and staminate) (March - July).

Fruit: Capsule (cylindric).

GLOSSARY OF TERMS

Achene - Small, dry 1-seeded fruit covered by ovary wall and free from the seed (i.e., grass).

Acuminate - Tapering to a long point.

Acute - Pointed at less than a right angle.

Allelopathic - Metabolic influence of plants upon each other (i.e., inhibitory affect of tarweeds on competing species).

Alternate - Singly located at a node.

Amplitude - The breadth of environmental requirements and tolerances of a plant (i.e., ecologic amplitude).

Anther - Pollen-containing portion of the stamen.

Apetalous - Without petals.

Appressed - Lying against the surface, e.g., hairs reclined to the stem or leaf surface.

Arcuate - Curved; arched.

Aril - Pulpy outer covering of a seed as found on yew shrubs.

Auricle - An ear-like lobe on grasses at the leaf-culm juncture.

Awn (awned) - Bristle-like appendage on the back or top of glumes and lemmas of some grass spikelets.

Axil (axillary) - The angle between leaf and stem; the location of inflorescences in some forbs and shrubs.

Banner - The upper petal of a leguminaceous (pea-like) flower.

Beak - A narrow projection on some fruits.

Berry - Fleshy fruit with several seeds (i.e., grapes).

Biennial - A plant that takes two years to complete its development and usually blooms the second year.

Bipinnate - Twice pinnate.

Biternate - Twice ternate.

Blade - The expanded part of a leaf.

Bract - Modified leaf subtending (below) a flower or cluster of flowers.

Caespitose - Tufted, bunched.

Calyx - The sepals of a flower - collectively.

Capsule - Dry, dehiscent fruit of two or more chambers (carpels) usually containing many seed (i.e., Iris)

Catkin - Elongate, deciduous cluster of flowers (i.e., willows).

Caudex - The thickened, often woody base above the roots.

Cauline - Pertaining to the stem.

Ciliate - Containing hairs or bristles on the leaf margin.

Collar - The outer side of the leaf where the blade and sheath come together in grasses.

Compound - Composed of two or more parts; leaves - two or more leaflets.

Cordate - Heart-shaped.

Corolla - The petals of a flower - collectively.

Corymb - Rounded or flat-topped inflorescence; pedicels or floral branches are attached at intervals with the outer longest and the inner progressively shorter.

Culm - The flowering stem of a grass or sedge.

Cuneate - Wedge-shaped; as a leaf shape.

Cyme - Rounded or flat-topped inflorescence; pedicels or floral branches are often attached at a single point and radiate outward; oldest flowers terminate main axis.

Deciduous - Falling off at the end of a season of growth or life; nonevergreen.

Dehiscent - A fruit that splits open.

Dentate - Toothed; teeth acute and pointing outward on leaf margin.

Dioecious - Plants with unisexual flowers produced on separate plants (i.e., holly).

Drupe - Fleshy fruit with a single seed enclosed by a pit; a stone fruit (i.e., peach, cherry).

Edaphic - Pertaining to the soil.

Entire - Leaf margin without teeth or indentations; continuously even.

Exserted - Projected beyond, e.g. - stamens protruding from the penstemon corolla.

Filament - The stalk of the stamen; or any thread-like structure.

Florets - The small flowers of grasses (consisting of palea, lemma, and included sexual parts).

Follicle - Dry fruit of one chamber (carpel) that splits on one side (i.e., milkweed, larkspur).

Forb - Herbaceous (nonwoody) plant with broad leaves that die back at the end of the growing season (excludes grasses and sedges).

Frond - The leaf of a fern.

Galea - The upper concave lip of a 2-lipped calyx or corolla (i.e., **Pedicularis** spp.)

Gall - An abnormal growth on a plant caused by insects, bacteria, fungi, viruses, chemicals or mechanical injury.

Glabrous - Smooth, without hairs or glands.

Gland (glandular) - A hair that secretes nectar; having glands and stickiness.

Glaucous - Bluish, whitish, or grayish in color due to a coating of powdery or waxy particles.

Glumes - A pair of scale-like bracts enclosing the grass spikelet.

Head - Inflorescence of dense sessile flowers (i.e., composite).

Herbaceous - Nonwoody plant with stems dying back at the end of the growing season (includes sedges and grasses).

Hip - The fruit of a rose; fleshy portion composed of receptacle, hypanthium, and the included achenes.

Imbricate - Overlapping like shingles on a roof.

Incised - Leaf margin; cut sharply, irregularly, and deeply.

Indehiscent - A fruit that does not split open.

Indusium - The structure that covers the sori of many ferns.

Inflorescence - The floral cluster of a plant; the arrangement of the flowers.

Involucral - Pertaining to the involucre.

Involucre - A whorl of bracts below an inflorescence.

Keel (keeled) - A sharp crease or ridge (as on a boat); the lower petals of a leguminaceous (pea-like) flower.

Lanceolate - Elongate with curved sides and pointed end; widest part in middle.

Leaflet - One of the divisions of a compound leaf.

Legume - Dry, dehiscent fruit of one carpel (chamber) splitting at maturity along two sutures (i.e., pea).

Lemma - A bract enclosing the flower in the spikelet of a grass; sometimes awned.

Lenticels - Lens-shaped corky lines on the bark of some woody plants (i.e., cherry).

Ligulate - Tongue-shaped or strap-shaped; e.g. - the flower of the Compositae family having strap-shaped corollas only.

Merous - A suffix indicating the number of parts or floral organs.

Mesic - Moist (neither very wet nor very dry).

Monoecious - Having separate male and female flowers on the same plant (i.e., corn).

Mucronate - Apex of leaf with a short, sharp point.

Nitrogen-fixing - The incorporation of atmospheric nitrogen in nitrogen compounds available to green plants by the symbiotic relationship with microorganisms (i.e., legumes like lupine; alders).

Node - Point on a stem where leaves or branches are attached.

Nut - Dry, indehiscent fruit with a hard, bony shell and one-seed (i.e., walnut).

Ob - Prefix meaning "inverted"; e.g. - obcordate or obovate where the broadest part is above the middle.

Oblanceolate - "Upside down" or inverted lanceolate; broadest above the middle.

Oblong - Elongate with parallel sides; length usually less than ten times the width.

Opposite - In pairs on either side of the node (leaves); inserted in front of the petals and opposite (stamens).

Orbicular - Circular in outline.

Ovate - Egg-shaped; broadest part below the middle.

Ovoid - Egg-shaped.

Palatability - Relative use made by grazing or browsing animals (deer, elk, cattle, sheep, horses) usually related to degree of preferability and need. Unpalatable may reflect slight use rather than the plant being inedible. Varies by season, total plant composition available, and the local area.

Palmate - Three or more lobes or parts arising from a common point (as fingers on a hand).

Panicle - An elongate inflorescence with compound branching pattern.

Paniculate - Like a panicle.

Pappus - Hairs, bristles, scales, or awns arising from the achene of a composite flower.

Pedicel (Pedicellate) - The stalk of a single flower in an inflorescence.

Peduncle - The stalk of an inflorescence.

Pemmican - Dried fruit pounded into a paste with fat and formed into cakes.

Perennial - A plant that lives for more than two years.

Perianth - The calyx and corolla collectively.

Petal - The white or colored part of the corolla that serves to attract pollinating insects.

Petiole (petiolate) - The stalk of a leaf.

Pinnae - The primary divisions of a pinnately compound leaf (i.e., fern).

Pinnate - Having parts arranged in two rows along a common axis (like a feather).

Pinnatifid (Pinnatified) - Cleft or divided pinnately.

Pinnule - The leaflet on a pinna (ultimate leaf segment of a fern frond).

Pistillate - The female flower.

Pith - The soft spongy central cylinder in woody stems.

Pod - A dry, dehiscent fruit (not precise).

Pome - Fleshy fruit with a core (i.e., apple).

Prickles - Small, weak spines on the bark (i.e., raspberry).

Prostrate - Lying flat on the ground.

Prow - The forward part of a ship (describes **Poa** spp. leaf tips).

Pubescent - Covered with hairs.

Raceme - An elongate inflorescence with single pedicels along the axis; usually blooming from base to apex.

Rachis - The axis of a spike or a pinnately compound leaf.

Ray - The marginal flower in a head of a composite; often strap-like and colored or white.

Reniform - Kidney-shaped; broader than long, with rounded ends and a wide basal sinus.

Retrorse - Directed downward; bent backward.

Rhizome (rhizomatous) - A modified underground stem growing horizontally and developing new plants (i.e., Kentucky bluegrass).

Samara - Dry indehiscent fruit with one or more wings (i.e., maple).

Savanna - A type of vegetation where tall, widely spaced plants are scattered individually over the land otherwise covered by low-growing plants (i.e., trees scattered over a grassland).

Scape - A leafless flowering stalk above basal leaves.

Schizocarp - A fruit that splits into 1-seeded parts or chambers (i.e., carrot).

Scree - A steep mass of rock, gravels, and/or soil on a mountain slope.

Sepal - The part of the calyx which is usually green and often leafy in texture.

Serrate - Leaf margin with fine, sharp teeth that are inclined upward.

Sessile - Flowers or leaves that lack a stalk.

Sheath - The portion of the leaf surrounding the culm.

Shrubs - A woody plant having several stems and lower in stature than a tree.

Sori - Clusters of sporangia on fern pinnae and fronds.

Spatulate - Oblong, broader at the upper end and with a rounded apex (like a spatula).

Spike - Elongated inflorescence of sessile flowers.

Spikelets - The florets and glumes of a grass.

Spine - A strong, sharp-pointed woody protrusion from the stem (i.e., rose).

Stamen - The pollen-producing part of the flower.

Staminate - The male flower.

Stellate - Star-shaped hairs on stems or leaves.

Stigma - The part of the pistil in a flower where pollen adheres and germinates.

Stipe - A stalk supporting a single organ (e.g. - an ovary on a bisquitroot).

Stipule - Leafy appendages that appear at the point of attachment of leaf and stem.

Stolon (stoloniferous) - A modified horizontal stem, above ground, that roots at the nodes developing new plants (i.e., strawberry).

Style - The stalk-like part of the pistil connecting the stigma to the ovary in a flower.

Sub-shrub - Somewhat shrubby though appearing herbaceous.

Subtend - Occurring immediately below (e.g. - a bract subtending a flower).

Tendril - A part of a stem modified into a slender, twining, holdfast structure (i.e., peavines, vetches).

Tepal - The calyx and corolla collectively when they are similar in size, form and color (e.g. - onion perianth).

Ternate - Arranged in three's.

Translucent - A fruit that is partially transparent.

Truncate - Base or apex of a leaf that is flattened as though cut-off.

Umbel - A flat-topped or rounded inflorescence having flowers on pedicels of equal length and attached to the summit of the peduncle (blooms outside inward).

Veins - Externally visible transporting tissue in a leaf.

Venation - The system or pattern of veins.

Vernal - Occurring in the springtime.

Whorl - A group of three or more parts at a node.

Wing - The lateral petals of a leguminaceous (pea-like) flower.

Xeric - Dry.

PLANT ASSOCIATION CODING REFERENCE

ABLA2/CLUN	Subalpine fir/queen's cup beadlily
ABLA2/LIBO2	Subalpine fir/twinflower
ABLA2/MEFE	Subalpine fir/fool's huckleberry
ABLA2/STAM	Subalpine fir/twisted stalk
ABLA2/STOC	Subalpine fir/western needlegrass
ABLA2/TRCA3	Subalpine fir/false bugbane
ABLA2/VAME	Subalpine fir/big huckleberry
ABLA2/VASC	Subalpine fir/grouse huckleberry
ABLA2/VASC/POPU	Supalpine fir/grouse huckleberry/ skunk-leaved polemonium
ABGR/ACGL	Grand fir/Rocky Mountain maple
ABGR/ACGL-PHMA	Grand fir/Rocky Mountain maple-ninebark
ABGR/CAGE	Grand fir/elk sedge
ABGR/CARU	Grand fir/pinegrass
ABGR/CLUN	Grand fir/queen's cup beadlily
ABGR/COOC2	Grand fir/goldthread
ABGR/GYDR	Grand fir/oakfern
ABGR/LIBO2	Grand fir/twinflower
ABGR/POMU-ASCA3	Grand fir/sword fern
ABGR/SPBE	Grand fir/birchleaf spiraea
ABGR/TABR/CLUN	Grand fir/Pacific yew/queen's cup beadlily
ABGR/TRCA3	Grand fir/false bugbane
ABGR/VAME	Grand fir/big huckleberry
ABGR/VASC	Grand fir/grouse huckleberry
AGSP/ERHE	Bluebunch wheatgrass/Wyeth's buckwheat
AGSP-POSA3	Bluebunch wheatgrass-Sandberg's bluegrass
AGSP-POSA3/ASCU4	Bluebunch wheatgrass-Sandberg's bluegrass/ Cusick's milkvetch
AGSP-POSA3/ERPU	Bluebunch wheatgrass-Sandberg's bluegrass/ shaggy fleabane
AGSP-POSA3/OPPO	Bluebunch wheatgrass-Sandberg's bluegrass/ prickly pear
AGSP-POSA3/PHCO2	Bluebunch wheatgrass-Sandberg's bluegrass/ Snake River phlox
AGSP-POSA3/SCAN	Bluebunch wheatgrass-Sandberg's bluegrass/ narrow-leaved skullcap
AGSP-SPCR-ARLO3	Bluebunch wheatgrass-sand dropseed-red three awn
ARAR/FEID-AGSP	Low sagebrush/Idaho fescue-bluebunch wheatgrass
ARAR/POSA3	Low sagebrush/Sandberg's bluegrass
ARRI/POSA3	Stiff sagebrush/Sandberg's bluegrass
ARTRV/FEID	Mountain big sagebrush/Idaho fescue
ARTRV/FEID-AGSP	Mountain big sagebrush/Idaho fescue bluebunch wheatgrass
CERE2/AGSP	Netleaf hackberry/bluebunch wheatgrass
ERDO/POSA3	Douglas' buckwheat/Sandberg's bluegrass
ERST2/POSA3	Strict buckwheat/Sandberg's bluegrass
FEID-AGSP	Idaho fescue-bluebunch wheatgrass
FEID-AGSP/BASA	Idaho fescue-bluebunch wheatgrass/ arrowleaf balsamroot
FEID-AGSP/LUSE	Idaho fescue-bluebunch wheatgrass/silky lupine

FEID-AGSP/PHCO2	Idaho fescue-bluebunch wheatgrass/Snake River phlox
FEID-CAHO	Idaho fescue-Hood's sedge
FEID-KOCR	Idaho fescue-prairie junegrass
FEVI-CAHO	Green fescue-Hood's sedge
FEVI-LULA2	Green fescue/spurred lupine
GLNE/AGSP	Spiny green-bush/bluebunch wheatgrass
JUOC/FEID-AGSP	Western juniper/Idaho fescue-bluebunch wheatgrass
PERA3/SYOR	Squawapple/mountain snowberry
PICO(ABGR)/CARU	Lodgepole pine (grand fir)/pinegrass
PICO(ABGR)/VAME-LIBO2	Lodgepole pine (grand fir)/big huckleberry-twinflower
PICO(ABLA2)/VASC	Lodgepole pine (subalpine fir)/grouse huckleberry
PICO(ABLA2)/VASC/POPU	Lodgepole pine/grouse huckleberry
PIPO/AGSP	Ponderosa pine/bluebunch wheatgrass
PIPO/ARAR	Ponderosa pine/low sagebrush
PIPO/ARTRV/CAGE	Ponderosa pine/mountain big sagebrush/ elk sedge
PIPO/ARTRV/FEID-AGSP	Ponderosa pine/mountain big sagebrush/ Idaho fescue-bluebunch wheatgrass
PIPO/CELE/CAGE	Ponderosa pine/mountain-mahogany/elk sedge
PIPO/CELE/FEID-AGSP	Ponderosa pine/mountain-mahogany/ Idaho fescue-bluebunch wheatgrass
PIPO/CELE/PONE	Ponderosa pine/mountain-mahogany/ Wheeler's bluegrass
PIPO/FEID	Ponderosa pine/Idaho fescue
PIPO/PERA3	Ponderosa pine/squawapple
PIPO/PUTR/AGSP	Ponderosa pine/bitterbrush/bluebunch wheatgrass
PIPO/PUTR/CAGE	Ponderosa pine/bitterbrush/elk sedge
PIPO/PUTR/CARO	Ponderosa pine/bitterbrush/Ross' sedge
PIPO/PUTR/FEID-AGSP	Ponderosa pine/bitterbrush/Idaho fescue-bluebunch wheatgrass
PIPO/SYAL	Ponderosa pine/common snowberry
PIPO/SYOR	Ponderosa pine/mountain snowberry
POSA3-DAUN	Sandberg's bluegrass-onespike oatgrass
PSME/ACGL-PHMA	Douglas-fir/Rocky Mountain maple-ninebark
PSME/CAGE	Douglas-fir/elk sedge
PSME/CARU	Douglas-fir/pinegrass
PSME/HODI	Douglas-fir/oceanspray
PSME/PHMA	Douglas-fir/ninebark
PSME/SPBE	Douglas-fir/spiraea
PSME/SYAL	Douglas-fir/common snowberry
PSME/SYOR	Douglas-fir/mountain snowberry
PUTR/AGSP	Bitterbrush/bluebunch wheatgrass
PUTR/FEID-AGSP	Bitterbrush/Idaho fescue-bluebunch wheatgrass
RHGL/AGSP	Smooth sumac/bluebunch wheatgrass
SYAL-ROSA	Common snowberry-rose
SYOR	Mountain snowberry
TSME/VASC	Mountain hemlock/grouse huckleberry
TSME/VAME	Mountain hemlock/big huckleberry

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